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COMPUTERS IN INFORMATION SCIENCES: COMPUTER COMPONENTS. (U)  
OCT 76

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DDC/BIB-76/09

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1 OF 4  
AD  
A031 200



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52

**AD-A031 200**

**DDC/BIB-76/09**

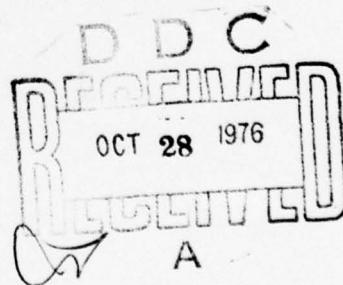
# **COMPUTERS INFORMATION SCIENCES: COMPUTER COMPONENTS**

**A DDC BIBLIOGRAPHY**

**DDC-TAS  
Cameron Station  
Alexandria, Va. 22314**

**OCTOBER 1976**

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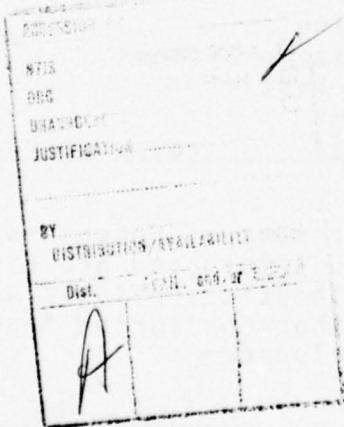
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19. KEY WORDS (Continue on reverse side if necessary and identify by block number) <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">*Bibliographies</td> <td style="width: 50%;">Data Processing</td> </tr> <tr> <td>*Computers</td> <td>Data Transmission Systems</td> </tr> <tr> <td>*Information Sciences</td> <td>Data Storage Systems</td> </tr> <tr> <td>Analog Computers</td> <td>Memory Devices</td> </tr> <tr> <td>Digital Computers</td> <td>Computer Logic</td> </tr> </table> <i>(See reverse)</i>			*Bibliographies	Data Processing	*Computers	Data Transmission Systems	*Information Sciences	Data Storage Systems	Analog Computers	Memory Devices	Digital Computers	Computer Logic
*Bibliographies	Data Processing											
*Computers	Data Transmission Systems											
*Information Sciences	Data Storage Systems											
Analog Computers	Memory Devices											
Digital Computers	Computer Logic											
20. ABSTRACT (Continue on reverse side if necessary and identify by block number)  This bibliography is a compilation of citations on Computers In Information Sciences; Computer Components. Discussed are computer memory devices, data storage systems, arithmetic and logic units, and punched card equipment. Corporate Author-Monitoring Agency, Subject, Title and Personal Author are included.												

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SECURITY CLASSIFICATION OF THIS PAGE(When Data Entered)

*Item 19 KEY WORDS (Cont'd)*

Computer Graphics  
Input Output Devices  
Arithmetic Units  
Central Processing Units  
Data Processing Terminals  
Computer Communications  
Data Processing Equipment



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## F O R E W O R D

This bibliography contains 265 unclassified and unlimited citations on *Computers In Information Sciences: Computer Components.*

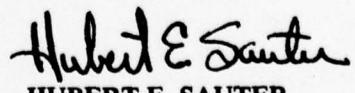
Citations were taken from entries processed into the Defense Documentation Center's data bank during the period of June 1972 to July 1976.

This report updates DDC report bibliography on *Computers In Information Sciences: Computer Components*, AD-761 970, DDC-TAS-73-25, dated June 1973.

Individual entries are arranged in AD number sequence under the heading AD Bibliographic References. Computer generated indexes of Corporate Author-Monitoring Agency, Subject, Title and Personal Author are provided.

**BY ORDER OF THE DIRECTOR, DEFENSE SUPPLY AGENCY**

**OFFICIAL**

  
HUBERT E. SAUTER  
Administrator  
Defense Documentation Center

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TITLE . . . . .	T-1
PERSONAL AUTHOR . . . . .	P-1

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 736 895 9/2  
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

A PARALLEL ARITHMETIC UNIT.

(U)

NOV 72 8P AVAEV,A. V. IVIZUN,I. D.  
GOLOVIN,M. A. ILAUT,V. N. ISOKOLOV,A.  
A. I  
REPT. NO. FTD-HT-23-406-71

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. OF PATENT (USSR)  
242 498 P 1-13 1969, BY J. MILLER.

DESCRIPTORS: (\*DIGITAL COMPUTERS, \*PATENTS), LOGIC  
CIRCUITS, SHIFT REGISTERS, USSR

(U)

IDENTIFIERS: \*ARITHMETIC AND LOGIC UNITS,  
TRANSLATIONS

(U)

A PARALLEL ARITHMETIC UNIT FOR DIGITAL COMPUTERS IS  
FITTED WITH TWO PAIRS OF REGISTERS, EACH DIVIDED INTO  
A DIGIT SUM REGISTER AND A DIGIT TRANSFER REGISTER.  
EACH REGISTER HAS ON ITS INPUT AN AND GATE  
WHICH LIES IN A FEEDBACK CIRCUIT TO INPUT ELEMENTS OF  
THE REGISTER IN THE OTHER PAIR, AN AND GATE TO  
CARRY OUT THE LOGIC OPERATIONS, AND A THREE INPUT  
ADDER. THE CLEAR SIGNALS ARE PASSED TO EACH AND  
GATE AND ADDER THROUGH CONTROL WIRES. (AUTHOR) (U)

1  
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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 747 134 9/2 14/3  
NAVAL POSTGRADUATE SCHOOL MONTEREY CALIF

A SURVEY AND ANALYSIS OF HIGH DENSITY  
MASS STORAGE DEVICES AND SYSTEMS.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,  
JUL 72 47P SCHNEIDEWIND, NORMAN F. ;  
SYMS, GORDON H. ; GRAINGER, THOMAS L. ; CARDEN,  
ROBERT J. ;  
REPT. NO. NPS-555572071A  
PROJ: FMSO-PO-2-2099

UNCLASSIFIED REPORT

DESCRIPTORS: (\*DATA STORAGE SYSTEMS, MILITARY  
REQUIREMENTS), (\*MEMORY DEVICES, REVIEWS), MAGNETIC  
TAPE, MAGNETIC RECORDING SYSTEMS, VIDEO SIGNALS, OPTICAL  
EQUIPMENT, PHOTOGRAPHIC RECORDING SYSTEMS,  
STEREOPHOTOGRAPHY, INFORMATION RETRIEVAL, ELECTRON  
BEAMS, RELIABILITY, PROTECTION, CORRECTIONS (U)  
IDENTIFIERS: OPTICAL STORAGE DEVICES, PHOTOSCOPIC  
STORAGE, HOLOGRAPHIC INFORMATION STORAGE, VIDEO TAPES,  
COMPUTER STORAGE MANAGEMENT (U)

A SURVEY AND ANALYSIS HAS BEEN MADE OF HIGH DENSITY  
MASS STORAGE SYSTEMS FOR THE NAVY FLEET  
MATERIAL SUPPORT OFFICE. THE PURPOSE OF THE  
PROJECT WAS TO SURVEY MASS STORAGE DEVICES AND  
SYSTEMS AND TO SELECT SEVERAL DEVICES FOR DETAILED  
ANALYSIS. REPRESENTATIVE DEVICES WERE ANALYZED IN  
ORDER TO DETERMINE THEIR SUITABILITY FOR VARIOUS FILE  
MANAGEMENT FUNCTIONS. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 747 508 9/2

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

DIGITAL COMPUTERS AND SYSTEMS. ARTICLE 8.  
PRINCIPLES OF MECHANISM AND STRUCTURAL  
ORGANIZATION OF THE COMPUTER STORAGE.

(U)

JUN 72 28P SINELNIKOV,E. M. ;  
GOLUBINTSEV,V. O. ; KUPAEV,V. M. ;  
REPT. NO. FTD-MT-24-1959-71

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED MACHINE TRANS. OF IZVESTIYA  
VYSSHIKH UCHEBNYKH ZAVEDENII. ELEKTROMEKHANIKA  
(USSR) NII P1263-1271 1970, BY W. W. KENNEDY.

DESCRIPTORS: (\*DATA STORAGE SYSTEMS, DESIGN), (\*MEMORY  
DEVICES, DIGITAL COMPUTERS), (\*COMPUTER PROGRAMMING,  
MULTIPLE OPERATION), CORE STORAGE, MAGNETIC CORES,  
MAGNETIC TAPE, THIN FILM STORAGE DEVICES, SHIFT  
REGISTERS, USSR

(U)

IDENTIFIERS: MAGNETIC DRUMS, MAGNETIC DISKS,  
MULTIPROGRAMMING, BUFFER STORAGE, SEMICONDUCTOR  
COMPUTER STORAGE, TRANSLATIONS

(U)

THE ARTICLE DISCUSSES THE BASIC IDEAS AND  
PRINCIPLES OF MULTILEVEL ORGANIZATION OF MEMORY AND  
METHODS OF ITS DYNAMIC DISTRIBUTION AMONG SEVERAL  
PROGRAMS IN THE MULTIPROGRAM WORK OF A DIGITAL  
ELECTRONIC COMPUTER. THESE IDEAS FOUND THEIR FIRST  
APPLICATION IN SECOND GENERATION COMPUTERS AND  
ATTAINED A DETERMINING INFLUENCE UPON THE EQUIPMENT  
PART AND THE OPERATIONAL PART OF A DIGITAL ELECTRONIC  
COMPUTER IN THIRD GENERATION COMPUTERS. A SHORT  
DESCRIPTION IS GIVEN OF STORES OF VARIOUS LEVELS:  
EXTERNAL STORES, HIGH SPEED STORES, BUFFER STORES,  
SUPERHIGH SPEED STORES. CONSIDERATION IS GIVEN TO  
QUESTIONS OF MEMORY PROTECTION. (AUTHOR)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 748 226 9/2  
APPLIED DATA RESEARCH INC WAKEFIELD MASS

COMPILER DESIGN FOR THE ILLIAC IV. VOLUME  
II.

(U)

DESCRIPTIVE NOTE: SEMI-ANNUAL TECHNICAL REPT. NO. 5, 14  
JAN-13 JUL 72,  
JUL 72 222P MILLSTEIN,ROBERT E. ;  
REPT. NO. CADD-7208-1411-VOL-2  
CONTRACT: DAHC04-70-C-0023, ARPA ORDER-1554  
MONITOR: AROD 9187-6-A

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (\*COMPILERS, DESIGN), (\*COMPUTER  
PROGRAMMING, INSTRUCTION MANUALS), DIGITAL COMPUTERS,  
CONTROL SEQUENCES, SUBROUTINES (U)  
IDENTIFIERS: PROGRAMMING MANUALS, FORTRAN, ILLIAC,  
\*ILLIAC 4 COMPUTER, COMPUTER STORAGE MANAGEMENT (U)

THE DOCUMENT DESCRIBES THE FORTRAN TRANSCRIBES  
USED IN CONJUNCTION WITH THE PARALYZER ON THE  
ILLIAC 4 COMPUTER. AFTER THE PARALYZER HAS  
MADE ITS TRANSFORMATIONS ON THE ORIGINAL FORTRAN  
PROGRAM, THE TRANSCRIBER CAN OUTPUT THE NEWLY  
CREATED PROGRAM IN STANDARD FORTRAN SOURCE FORMAT.  
THE OUTPUT FILE CAN THEN BE EDITED AND FED BACK TO  
THE FORTRAN COMPILER. STORAGE ALLOCATOR ROUTINES  
ARE DESCRIBED ALONG WITH FLOW ANALYSIS ROUTINES AND  
THE MACRO EXPANDER AND OPTIMIZER PHASES. (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 748 242 9/5

GENERAL ELECTRIC CO PITTSFIELD MASS ORDNANCE SYSTEMS

ELECTRICAL CHARACTERIZATION OF COMPLEX  
MICROCIRCUITS.

(U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT. MAR 71-MAR 72,  
JUN 72 306P CITRIN, DAVID A. ;

CONTRACT: F30602-71-C-0188

MONITOR: RADC TR-72-145

UNCLASSIFIED REPORT

DESCRIPTORS: (\*INTEGRATED CIRCUITS,  
RELIABILITY(ELECTRONICS)), TEST METHODS, LOGIC CIRCUITS,  
STANDARDS, AMPLIFIERS, COMPARATORS, MEMORY DEVICES (U)

IDENTIFIERS: LARGE SCALE INTEGRATED CIRCUITS, MEDIUM  
SCALE INTEGRATED CIRCUITS, OPERATIONAL AMPLIFIERS,  
RADIATION HARDENING, SEMICONDUCTOR COMPUTER STORAGE (U)

SECTION 3000 OF MIL-STD-883 WAS REVIEWED AND  
REWRITTEN. NEW OR MODIFIED SLASH SHEETS TO MIL-  
M-38510 WERE PREPARED FOR DTL AND T2L-SSI  
LOGIC CIRCUITS, 741 OPERATIONAL AMPLIFIER, 710/  
711/LM106 DIFFERENTIAL COMPARATOR, AND THE 723  
REGULATOR. THE RESULTS OF THE VENDOR COMPARISON,  
TEST CIRCUITS, AND PROPOSED SLASH SHEETS ARE  
INCLUDED. TEST PROFILES WERE PREPARED FOR A BROAD  
RANGE OF BIPOLEAR AND MOS SEMICONDUCTOR MEMORIES.  
ROM'S PROM'S, AND STATIC AND DYNAMIC RAM'S WERE  
CONSIDERED. THE TEST PROFILES COVER STATIC AND  
DYNAMIC FUNCTIONAL TEST REQUIREMENTS. MSI/LSI  
TEST CONSIDERATIONS WERE BASED UPON THE DEVELOPMENT  
OF A MINIMUM SET OF LOGIC TESTS, BASED UPON A STUCK-  
AT-ONE, STUCK-AT-ZERO PHILOSOPHY IN ORDER TO PROVIDE  
A RAPID AND ACCURATE FUNCTIONAL TEST OF COMPLEX  
DEVICES. THIS TESTING CRITERIA TERMED 'LOGIC  
INTEGRITY TESTS' IS DESCRIBED AND IS PROPOSED FOR  
INCLUSION IN MIL-STD-883. TEST VECTORS BASED  
UPON THE LOGIC INTEGRITY TEST FOR THE 2 AND 4  
BIT FULL ADDERS, 4 X 2 MULTIPLIER AND THE 9341/54181  
ARITHMETIC LOGIC UNIT ARE INCLUDED IN THIS  
REPORT. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 748 592 9/2  
NAVAL RESEARCH LAB WASHINGTON D C

SIGNAL PROCESSING ELEMENT USERS' REFERENCE  
MANUAL.

(U)

DESCRIPTIVE NOTE: INTERIM REPT.  
SEP 72 39P  
REPT. NO. NRL-7488  
PROJ: NRL-B02-06, NRL-B02-10

UNCLASSIFIED REPORT

DESCRIPTORS: (\*DATA PROCESSING, INSTRUCTION MANUALS),  
RADAR SIGNALS, SONAR SIGNALS, COMMUNICATION SYSTEMS,  
DIGITAL COMPUTERS, DATA STORAGE SYSTEMS, INPUT OUTPUT  
DEVICES (U)  
IDENTIFIERS: ARITHMETIC AND LOGIC UNITS, CENTRAL  
PROCESSING UNITS, \*SIGNAL PROCESSING (U)

THE NRL SIGNAL PROCESSING ELEMENT (SPE)  
IS A HIGH-PERFORMANCE SIGNAL PROCESSING FACILITY FOR  
RADAR, SONAR, AND COMMUNICATION SYSTEMS. IT IS  
INTENDED TO BE COMPATIBLE WITH THE NAVY ALL  
APPLICATIONS DIGITAL COMPUTER (AADC). THE  
SPE CONSISTS OF FOUR MAJOR SUBSYSTEMS: A  
MICROPROGRAMMED CONTROL UNIT (MCU), A  
BUFFER STORE AND STORAGE CONTROL UNIT  
(SCU), A SIGNAL PROCESSING ARITHMETIC UNIT  
(SPAU), AND INPUT (I/O) UNITS. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 748 996 9/2  
NAVAL RESEARCH LAB WASHINGTON D C

SIGNAL PROCESSING ELEMENT FUNCTIONAL  
DESCRIPTION. PART 1. MICROPROGRAMMED CONTROL  
UNIT, BUFFER STORE, AND STORAGE CONTROL  
UNIT.

(U)

DESCRIPTIVE NOTE: INTERIM REPT.,  
SEP 72 40P IHNAT, JOHN P.; SMITH,  
WILLIAM R.; ROBERTS, JOHN D.; JR.; WU, Y.  
S.; WALD, BRUCE;  
REPT. NO. NRL-7490  
PROJ: NRL-B02-06, NRL-B02-10

UNCLASSIFIED REPORT

DESCRIPTORS: (\*DIGITAL COMPUTERS, MEMORY DEVICES), INPUT  
OUTPUT DEVICES, DATA PROCESSING, INTERFACES,  
COMMUNICATION SYSTEMS, RADAR EQUIPMENT, SONAR EQUIPMENT  
IDENTIFIERS: MICROPROGRAMMING, ARITHMETIC AND LOGIC  
UNITS, SIGNAL PROCESSING, COMPUTERS (U)

THE NRL SIGNAL PROCESSING ELEMENT (SPE) IS  
BEING DEVELOPED TO PROVIDE A HIGH-PERFORMANCE SIGNAL  
PROCESSING FACILITY FOR RADAR, SONAR, AND  
COMMUNICATION SYSTEMS. IT IS INTENDED TO BE  
COMPATIBLE WITH THE NAVY'S ALL APPLICATIONS  
DIGITAL COMPUTER (AADC). THE SPE CONSISTS  
OF FOUR MAJOR SUBSYSTEMS: A MICROPROGRAMMED  
CONTROL UNIT (MCU), A BUFFER STORE AND  
STORAGE CONTROL UNIT (SCU), A SIGNAL  
PROCESSING ARITHMETIC UNIT (SPAU), AND  
INPUT/OUTPUT (I/O) UNITS. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 749 267 9/2  
NORTH AMERICAN ROCKWELL CORP ANAHEIM CALIF ELECTRONICS  
GROUP

SINGLE CRYSTAL CYLINDRICAL MAGNETIC DOMAIN  
MATERIALS FOR MEMORY APPLICATIONS. (U)

DESCRIPTIVE NOTE: SEMIANNUAL TECHNICAL REPT. 1 OCT 71-30  
MAY 72.

SEP 72 61P HEINZ,D. M. SELKINS,P.  
E. GEORGE,P. K. HUFFMAN,B. J. ;  
REPT. NO. C70-1144.26/501  
CONTRACT: DAAB07-70-C-0258  
PROJ: DA-1-H-062101-A-327  
TASK: 1-H-062101-A-32701  
MONITOR: ECOM 0258-3

UNCLASSIFIED REPORT

DESCRIPTORS: (\*THIN FILM STORAGE DEVICES, GARNET),  
(\*DATA STORAGE SYSTEMS, FEASIBILITY STUDIES), SINGLE  
CRYSTALS, EPITAXIAL GROWTH, YTTRIUM COMPOUNDS, GALLIUM  
COMPOUNDS, FERRATES (U)  
IDENTIFIERS: YTTRIUM IRON GARNETS, MAGNETIC DOMAINS,  
MAGNETIC FILMS, \*MAGNETIC BUBBLE DOMAINS, THIN  
FILMS (U)

THE GOAL OF THIS PROGRAM IS TO DEMONSTRATE THE  
FEASIBILITY OF A BUFFER MEMORY USING THE CONTROLLED  
PROPAGATION OF CYLINDRICAL MAGNETIC (OR BUBBLE)  
DOMAINS. THE BUBBLE DOMAIN MATERIAL INVESTIGATION,  
DIRECTED TOWARD PREPARING SINGLE CRYSTAL LAYERS WHICH  
EXHIBIT USEFUL DEVICE PROPERTIES IS BEING PURSUED  
WITH HETEROEPITAXIAL FILMS OF GALLIUM-SUBSTITUTED  
YTTRIUM IRON GARNET OR RELATED GARNET COMPOSITIONS.  
THE BUBBLE DOMAIN DEVICE INVESTIGATION IS DIRECTED  
TOWARD DEVELOPING BUBBLE MANIPULATION TECHNIQUES  
SUITABLE FOR IMPLEMENTING THE MEMORY. THE BODY OF  
THE REPORT CONTAINS SECTIONS ON MATERIAL AND DEVICE  
WORK. THE MATERIAL SECTION IS CHIEFLY CONCERNED  
WITH CZOCHRALSKI-GROWN RARE EARTH GARNET CRYSTALS  
USED AS SUBSTRATES FOR BUBBLE DOMAIN FILMS. THIS  
DISCUSSION COVERS OBSERVED IMPERFECTIONS IN CRYSTALS,  
THE EFFECT SUBSTRATE IMPERFECTIONS HAVE ON BUBBLE  
DOMAIN BEHAVIOR IN EPITAXIAL FILMS AND CRYSTAL GROWTH  
PARAMETERS WHICH INFLUENCE THE FORMATION OF THESE  
IMPERFECTIONS. THE DEVICE SECTIONS OF THIS REPORT  
PRESENT ADVANCES IN BUBBLE DOMAIN DEVICE PHYSICS AND  
HARDWARE. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 749 732 9/2  
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

EXPANSION OF ADDRESSING MEANS OF THE M-220  
COMPUTER,

(U)

JUL 72 20P ZHILCHENKOV,V. D. ;MARKOV,  
A. S. ;MATVEEV,V. D. ;SOKOLOV,S. N. ;  
REPT. NO. FTD-HT-23-U011-72

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. FROM INSTITUT FIZIKI  
VYSOKIKH ENERGIJ, SERPUKHOV. REPORT (USSR) PI-17  
1969, BY W. W. KENNEDY.

DESCRIPTORS: (\*COMPUTER PROGRAMMING, \*DATA STORAGE  
SYSTEMS), MEMORY DEVICES, DIGITAL COMPUTERS, USSR

(U)

IDENTIFIERS: REGISTERS(COMPUTERS), TRANSLATIONS

(U)

A 15-BIT BASE REGISTER AND A 9-BIT COMPLEMENTARY  
REGISTER ARE ADDED AS ADDITIONAL MEANS OF ADDRESSING  
TO THE M-220 COMPUTER. THE ADDRESS REGISTER IS  
ENLARGED. THESE MEANS PROVIDE A STRAIGHTFORWARD  
ADDRESSING WITHIN A 32 K CORE MEMORY I.E. ALLOW TO  
MAKE A CONTINUOUS INDEXING OF 32 K ARRAYS AND TO  
TRANSMIT BY A SINGLE PSEUDO-INSTRUCTION INFORMATION  
FILES OF UP TO 32 K WORDS BETWEEN INTERNAL AND  
EXTERNAL MEMORY UNITS. THE PAPER DESCRIBES BOTH  
MATHEMATICAL AND ELECTRONICAL MODIFICATIONS OF THE  
COMPUTER. (AUTHOR)

(U)

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AD- 749 759 9/2 14/3  
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

THE AUTOMATIC FORMATION OF A CONSTANT CHECK  
SUM WITH ACCESS TO THE MINSK-22 COMPUTER  
MAGNETIC-TAPE STORAGE.

(U)

AUG 72 9P GONCHAROV,V. A. iPETROV,V.  
I. ;  
REPT. NO. FTD-MT-24-49-72

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED MACHINE TRANS. OF  
MEKHANIZATSIYA I AVTOMATIZATSIYA UPRAVLENIYA (USSR)  
N4 P38-39 1970, BY HENRY PECK.

DESCRIPTORS: (\*DATA STORAGE SYSTEMS, MAGNETIC TAPE),  
(\*MAGNETIC TAPE, MONITORS), CORE STORAGE, MAGNETIC  
CORES, QUALITY CONTROL, USSR

(U)

IDENTIFIERS: MINSK 22 COMPUTERS, TRANSLATIONS

(U)

ONE OF THE METHODS OF MONITORING THE AUTHENTICITY  
OF DATA IN A MAGNETIC-TAPE FILE IS CYCLICALLY SUMMING  
UP WORDS WITH A COMPLEMENT NOTATION UP TO THE CHECK  
SUM -77...77 BY THE LAST WORD IN THE FILE. ON THE  
MINSK-22 COMPUTER THESE OPERATIONS ARE EXECUTED  
EITHER BEFORE THE FILE IS NOTED ONTO THE TAPE BY  
CYCLIC SUMMATION AND BY THE COMPLEMENT FORMATION INTO  
FCMS OR AFTER THE NOTATION OF THE FILE BY THE  
COMPLEMENT FORMATION FROM THE CHECK SUM STORED IN THE  
SUMMATOR WITH REPEATED ACCESS TO THE ACCUMULATOR FOR  
THE COMPLEMENT NOTATION. BOTH IN THIS CASE AND IN  
THE OTHER CASE SUBSTANTIAL MACHINE TIME IS LOST.  
THE REPORT DESCRIBES A CIRCUIT WHICH PERMITS  
AVOIDING THESE TIME LOSSES AND ASSURES THE AUTOMATIC  
FORMATION AND NOTATION OF THE COMPLEMENT UP TO THE  
CHECK SUM -77...77 BY THE LAST WORD OF THE FILE  
DURING THE NOTATION OF DATA ONTO MAGNETIC TAPE. (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 750 435 9/2  
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

PERMANENT STORAGE OF THE 'DNEPR-2' COMPUTER  
SYSTEM,

(U)

AUG 72 IIP SELIGEI,A. M. ;  
TROSTYANETSKII,D. S. ;  
REPT. NO. FTD-MT-24-177-72

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED MACHINE TRANS. OF  
MEKHANIZATSIYA I AVTOMATIZATSIYA UPREVLENIYA (USSR)  
N3 P31-32 1970, BY HENRY PECK.

DESCRIPTORS: (\*MEMORY DEVICES, DESIGN), DATA STORAGE

(U)

SYSTEMS, DIGITAL COMPUTERS, USSR

IDENTIFIERS: READ ONLY STORAGE, TRANSLATIONS

(U)

AN INDEPENDENT PERMANENT STORAGE OF THE TRANSFORMER  
TYPE OF THE DNEPR-2 COMPUTER SYSTEM IS DESCRIBED  
WHICH COLLECTS OCTAL DATA AND OUTPUTS IT IN BINARY.  
(AUTHOR)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 750 512 9/2

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

THE ORGANIZATION OF THE PARALLEL OPERATION OF  
PERIPHERAL EQUIPMENT USING AN ASSOCIATIVE  
STORAGE.

(U)

AUG 72 14P LEVINSKII, L. S. ;  
REPT. NO. FTD-HT-23-1135-72

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. OF NAUCHNO-  
TEKHNICHESKAYA INFORMATSIYA. SERIYA I:  
ORGANIZATSIIA I METODIKA INFORMATSIONNOI RABOTY  
(USSR) N7 P30-32 1971, BY HENRY PECK.

DESCRIPTORS: (\*MEMORY DEVICES, INPUT OUTPUT DEVICES),  
LOGIC CIRCUITS, PERFORMANCE(ENGINEERING), USSR (U)  
IDENTIFIERS: ASSOCIATIVE STORAGE, TRANSLATIONS (U)

A PAGE ORGANIZED BUFFER MEMORY IS USED FOR A  
SIMULTANEOUS FUNCTIONING OF MANY INPUT OUTPUT UNITS  
CONNECTED TO A CENTRAL COMPUTER SYSTEM. THE MAIN  
FEATURES ARE GIVEN ON THE STORAGE DEVICE WITH A BUILT  
IN LOGIC FUNCTIONING AS THE DISPATCHING UNIT IN  
OPERATIONS WITH PAGES, AS DEVELOPED AT VINITI.  
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 750 605 9/2  
ARMY MOBILITY EQUIPMENT RESEARCH AND DEVELOPMENT CENTER  
FORT BELVOIR VA

SOURCE TEXT EDITOR FOR THE VARIAN DATA  
620.

(U)

DESCRIPTIVE NOTE: RESEARCH REPT. JUL 71-JAN 72,  
AUG 72 75P GOSS,MELVIN L. ;  
REPT. NO. USAMERDC-2033  
PROJ: DA-1-T-662705-A-012  
TASK: 1-T-662705-A-01204

UNCLASSIFIED REPORT

DESCRIPTORS: (\*COMPUTER PROGRAMS, INSTRUCTION MANUALS),  
MAGNETIC TAPE, CORRECTIONS (U)  
IDENTIFIERS: PUNCHED TAPE, ASSEMBLY LANGUAGES,  
FORTRAN, FORTRAN 4 PROGRAMMING LANGUAGE, \*EDITING  
ROUTINES (U)

A SOURCE TEXT EDITOR PROGRAM FOR APPLICATION ON THE VARIAN DATA 620 IN THE COMPUTER-AIDED DESIGN AND ENGINEERING FACILITY WAS DEVELOPED TO PROVIDE THE USER WITH A CONVENIENT METHOD FOR GENERATION OF A SOURCE PAPER TAPE FOR INPUT TO AN ASSEMBLER OR FORTRAN IV COMPILER; CORRECTION AND MODIFICATION OF SOURCES TEXT TAPES THROUGH KEYBOARD CONTROL FROM THE TELETYPEWRITER OR EQUIVALENT CRT TERMINAL DEVICE AND THE HIGH-SPEED PAPER TAPE SYSTEM; LISTING SOURCES TEXT TELETYPEWRITER PRINTER; READING AND WRITING SOURCE TEXT DATA TO LINETAPE MAGNETIC TAPE FILES; MANIPULATION OF DATA IN SMALL DATA BASE FILES WITH SUCH POSSIBLE APPLICATIONS AS SYSTEM FILES DIRECTORIES, MAINTENANCE ASSISTANCE AND GENERAL TEACHING AID FOR THE COMPUTER-AIDED DESIGN AND ENGINEERING FACILITY; AND PREPARATION OF SOURCE DATA FILE FOR INPUT TO DAS ASSEMBLER. THE SOURCE TEXT EDITOR USES THE LINETAPE MAGNETIC TAPE SYSTEM MANUFACTURED BY COMPUTER OPERATIONS, INC., AS DATA FILES. SPECIAL LOADER AND UTILITY SUBROUTINES, IN ADDITION TO THE SOURCE TEXT EDITOR, WERE PROVIDED WITH ASSEMBLY LANGUAGE PROGRAM LISTINGS. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 750 665 9/2  
NAVAL RESEARCH LAB WASHINGTON D C

SIGNAL PROCESSING ELEMENT FUNCTIONAL  
DESCRIPTION. PART 2 (PRELIMINARY). SIGNAL  
PROCESSING ARITHMETIC UNIT. (U)

DESCRIPTIVE NOTE: INTERIM REPT.,  
OCT 72 54P SMITH, WILLIAM R. ; SMITH,  
HAROLD H. ;  
REPT. NO. NRL-MR-2522  
PROJ: NRL-B02-06, XF21-241-015

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO PART 1, AD-748 996.

DESCRIPTORS: (\*DIGITAL COMPUTERS, LOGIC CIRCUITS), INPUT  
OUTPUT DEVICES, DATA PROCESSING, INTERFACES,  
COMMUNICATION SYSTEMS, RADAR EQUIPMENT, SONAR EQUIPMENT  
IDENTIFIERS: MICROPROGRAMMING, \*ARITHMETIC AND LOGIC  
UNITS, SIGNAL PROCESSING, COMPUTERS (U)

THE NRL SIGNAL PROCESSING ELEMENT (SPE) IS  
BEING DEVELOPED TO PROVIDE A HIGH-PERFORMANCE SIGNAL  
PROCESSING FACILITY FOR RADAR, SONAR, AND  
COMMUNICATION SYSTEMS. IT IS INTENDED TO BE  
COMPATIBLE WITH THE NAVY'S ALL APPLICATIONS  
DIGITAL COMPUTER (AADC). THE SPE CONSISTS  
OF FOUR MAJOR SUBSYSTEMS; A MICROPROGRAMMED  
CONTROL UNIT (MCU), A BUFFER STORE AND  
STORAGE CONTROL UNIT (SPU), A SIGNAL  
PROCESSING ARITHMETIC UNIT (SPAU), AND  
INPUT/OUTPUT (I/O) UNITS. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 751 114 9/2  
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

THE FUTURE OF THIN MAGNETIC FILMS. (U)

SEP 72 9P ILYUSHENKO,L. :  
REPT. NO. FTD-HT-23-1403-72

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. OF PROMYSHLENNOST BELOROSSI (USSR) N9 P75-76 1970, BY CHARLES T. OSTERTAG.

DESCRIPTORS: (\*THIN FILM STORAGE DEVICES, REVIEWS), MANUFACTURING, MAGNETIC PROPERTIES, IRON ALLOYS, NICKEL ALLOYS, COBALT ALLOYS, MICROELECTRONICS, USSR (U)

IDENTIFIERS: \*MAGNETIC FILMS, THIN FILMS,  
TRANSLATIONS (U)

THE REPORT CONTAINS A DISCUSSION OF MAGNETIC FILM USED IN MEMORY DEVICES IN ELECTRONIC COMPUTERS. MAGNETIC FILM IS A STRONG RIVAL OF SEMICONDUCTOR MEMORY DEVICES; CONSEQUENTLY, THE STUDY OF THE CHARACTERISTICS OF MAGNETIC FILM AND THE SEARCH FOR NEW MATERIALS FOR THEIR MANUFACTURE ARE IMPORTANT. RESEARCH IS BEING CONDUCTED ON FILMS OF DOUBLE AND TRIPLE ALLOYS BASED ON IRON, NICKEL, AND COBALT COMBINED WITH CHROMIUM, MANGANESE, COPPER MOLYBDENUM, SULPHUR, AND PHOSPHORUS. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 753 403 9/2  
MICHIGAN UNIV ANN ARBOR SYSTEMS ENGINEERING LAB

A CLASS OF OPERATIONS SUITABLE FOR  
FRACTIONAL-SIZE ASSOCIATIVE MEMORIES.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,  
OCT 72 60P JOHNSON, DONALD W. ;  
REPT. NO. SEL-TR-61, 010749-5-T  
CONTRACT: DAAB07-72-C-0058  
PROJ: PRON-C8-2-U8501-01-C8-CA  
MONITOR: ECOM 0058-61

UNCLASSIFIED REPORT

DESCRIPTORS: (\*MEMORY DEVICES,  
PERFORMANCE(ENGINEERING)), COST EFFECTIVENESS, TIME  
STUDIES, EFFICIENCY, COMPUTER PROGRAMMING

(U)

IDENTIFIERS: \*ASSOCIATIVE STORAGE

(U)

ASSOCIATIVE MEMORIES HAVE EXTREMELY USEFUL  
CAPABILITIES, BUT THE MEMORIES ARE EXTREMELY  
EXPENSIVE. ONE WAY OF CIRCUMVENTING THE HIGH  
HARDWARE COST IS TO USE AN ASSOCIATIVE MEMORY WHICH  
IS SMALLER THAN THE DATA BASE, AND PROCESS THE DATA  
BY PAGES. BY USING A SMALLER MEMORY THE HARDWARE  
COSTS ARE THUS REDUCED. SOME OPERATIONS CAN BE  
PERFORMED QUITE EFFICIENTLY ON AN ASSOCIATIVE MEMORY  
SMALLER THAN THE DATA BASE, (FRACTIONAL-SIZE  
ASSOCIATIVE MEMORY) WHILE OTHERS CANNOT. IN  
THIS REPORT A CLASS OF OPERATIONS WHICH ARE PERFORMED  
EFFICIENTLY ON A FRACTIONAL-SIZE ASSOCIATIVE  
MEMORY IS DEFINED. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 753 944 17/2 20/5 9/4  
ARMY FOREIGN SCIENCE AND TECHNOLOGY CENTER CHARLOTTESVILLE  
VA

PROBLEMS OF LASER BEAM DATA TRANSMISSION,  
PROCEEDINGS OF THE FIRST ALL-UNION  
CONFERENCE, KIEV, SEPTEMBER 1968,

(U)

NOV 72 491P DERYUGIN, I. A. ;  
REPT. NO. FSTC-HT-23-2015-72  
PROJ: FSTC-T7023012301

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: TRANS. OF MONO. PROBLEMY PEREDACHI  
INFORMATSII LAZERNYM IZLUCHENIEM, KIEV, 1968 P3-  
712.

DESCRIPTORS: (\*OPTICAL COMMUNICATIONS, SYMPOSIA), (\*DATA  
TRANSMISSION SYSTEMS, LASERS), (\*COHERENT RADIATION,  
INFORMATION THEORY), DATA PROCESSING, QUANTUM THEORY,  
STEREOPHOTOGRAPHY, OPTICAL SCANNING, MEMORY DEVICES,  
SIGNAL-TO-NOISE RATIO, PHOTONS, COUNTING METHODS,  
ATMOSPHERE MODELS, USSR

(U)

IDENTIFIERS: OPTICAL STORAGE DEVICES, SIGNAL  
PROCESSING, HOLOGRAPHIC INFORMATION STORAGE,  
HOLOGRAPHY, INFORMATION SYSTEMS, TRANSLATIONS

(U)

THE DOCUMENT CONTAINS PAPERS PRESENTED AT THE FIRST  
CONFERENCE ON THE PROBLEMS OF LASER BEAM DATA  
TRANSMISSION. THE VOLUME OF RESEARCH IS DEVOTED TO  
THE CONSTRUCTION OF LASER INFORMATION SYSTEMS.  
HOWEVER, UP TO THIS TIME THERE HAVE BEEN NO  
EFFICIENTLY ACTIVE LASER INFORMATION SYSTEMS. THE  
PRIMARY CAUSE HOLDING BACK THE DEVELOPMENT OF  
EFFICIENT LASER INFORMATION SYSTEMS IS THE LOW LEVEL  
OF RESEARCH IN THE FIELD OF PRECISION PHYSICAL-  
CHEMICAL TECHNOLOGY OF SUBSTANCES WITH SMALL LIGHT  
LOSSES AND PARAMETERS WHICH ARE EFFICIENTLY  
CONTROLLABLE BY MEANS OF ELECTRIC, MAGNETIC AND  
ACOUSTIC FIELDS.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 754 365 9/2  
CALIFORNIA UNIV LOS ANGELES

THE PAGE FAULT FREQUENCY REPLACEMENT  
ALGORITHM.

(U)

72 13P CHU,WESLEY W. ;OPDERBECK,  
HOLGER ;  
CONTRACT: N00014-69-A-0200-4027  
PROJ: NR-048-129

UNCLASSIFIED REPORT  
AVAILABILITY: PUB. IN AFIPS - CONFERENCE  
PROCEEDINGS, V41 P597-609 1972.

DESCRIPTORS: (\*COMPUTER PROGRAMMING, DATA STORAGE  
SYSTEMS), MULTIPLE OPERATION, REAL TIME, TIME SHARING,  
ALGORITHMS (U)  
IDENTIFIERS: COMPUTER STORAGE MANAGEMENT (U)

DYNAMIC MEMORY MANAGEMENT IS AN IMPORTANT ADVANCE  
IN MEMORY ALLOCATION ESPECIALLY IN VIRTUAL MEMORY AND  
MULTIPROGRAMMING SYSTEMS. IN THE PAPER THE AUTHORS  
CONSIDER THE CASE OF PAGED MEMORY SYSTEMS: THAT  
IS, THE PHYSICAL AND LOGICAL ADDRESS SPACE OF THESE  
SYSTEMS IS PARTITIONED INTO EQUAL SIZE BLOCKS OF  
CONTIGUOUS ADDRESSES. A NEW TYPE OF REPLACEMENT  
ALGORITHM BASED ON PAGE FAULT FREQUENCY (PFF) IS  
DEVELOPED. THIS PFF REPLACEMENT ALGORITHM  
ALLOCATES MEMORY ACCORDING TO THE DYNAMICALLY  
CHANGING MEMORY REQUIREMENTS OF EACH PROCESS. IT  
DOES NOT REQUIRE PRIOR KNOWLEDGE OF PROGRAM BEHAVIOR  
AND CAN BE APPLIED TO PROGRAMS OF DIFFERENT TYPES AND  
SIZES. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 754 680 9/2  
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

REALIZATION OF COMBINATION ADDERS FOR A  
SIMULTANEOUS ADDITION OF SEVERAL TERMS,

(U)

JAN 73 19P BELYAVSKII, V. L. ; KAKURIN,  
N. YA. ; VASILENKO, YU. A. ;  
REPT. NO. FTD-HT-23-1709-72  
PROJ: FTD-T71-05-09, FTD-T71-05-13

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. OF PRIBORY I SISTEMY  
AVTOMATIKI (USSR) N12 P120-127 1969, BY VICTOR  
MESENZEFF.

DESCRIPTORS: (\*LOGIC CIRCUITS, COMPUTER LOGIC), DIGITAL  
COMPUTERS, TRANSFER FUNCTIONS, USSR (U)

IDENTIFIERS: ARITHMETIC AND LOGIC UNITS,  
TRANSLATIONS (U)

THE REPORT DISCUSSES COMBINATION SUM CIRCUITS THAT  
OPERATE IN A COMPUTER SYSTEM DIFFERENT FROM A BINARY  
SYSTEM. THE ENUMERATED TYPES OF SUM CIRCUITS HAVE  
CERTAIN DISADVANTAGES OVER ORDINARY N BIT PARALLEL  
SUM CIRCUITS IN THE TIME OF EXECUTING TRACKING  
OPERATIONS. (U)

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/ZOM07

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 754 933 9/2 1/3 14/3  
MITRE CORP BEDFORD MASS

COMPARISON OF REQUEST HANDLING CAPABILITY OF  
SOME AIRBORNE DRUM MEMORIES.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,  
DEC 72 42P SUTHERLAND, NORMAN B. ;  
REPT. NO. MTR-2434  
CONTRACT: F19628-71-C-0002  
PROJ: AF-6700  
MONITOR: ESD TR-72-327

UNCLASSIFIED REPORT

DESCRIPTORS: (\*MEMORY DEVICES,  
PERFORMANCE(ENGINEERING)), AIRBORNE, DATA PROCESSING (U)  
IDENTIFIERS: MAGNETIC DRUMS, AVIONICS (U)

A METHOD IS DESCRIBED FOR DEVELOPING A CONSISTENT  
FRAMEWORK FOR COMPARING THE REQUEST HANDLING  
CAPABILITIES OF VARIOUS DRUM MEMORIES. THE METHOD  
PERMITS ONE TO ESTIMATE THE REQUEST CAPACITY OF A  
DRUM, GIVEN ITS PHYSICAL CHARACTERISTICS TOGETHER  
WITH A NUMBER OF ASSUMPTIONS REGARDING SUCH FACTORS  
AS DATA ORGANIZATION, BLOCKING AVERAGE QUANTITY OF  
DATA TRANSFERRED PER REQUEST, AND EFFECTIVE LATENCY  
TIME. THE METHOD DEVELOPED IS USED TO COMPARE THE  
CAPABILITY OF SEVERAL EXISTING OR PROPOSED AIRBORNE  
DRUMS. THE EFFECT OF A NUMBER OF POSSIBLE  
MODIFICATIONS TO A PARTICULAR DRUM (E.G., INCREASE  
DENSITY, INCREASED ROTATIONAL SPEED, REDUCTION OF  
NUMBER OF OVERHEAD BITS) IS ALSO EXAMINED.

(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 755 395 9/2  
BOSTON COLL CHESTNUT HILL MASS SPACE DATA ANALYSIS  
LAB

GRAPPAC: A PACKAGE OF FORTRAN SUBROUTINES  
FOR USE WITH THE 6000 SERIES 274 INTERACTIVE  
GRAPHICS SYSTEM OF THE CONTROL DATA  
CORPORATION,

(U)

SEP 72 63P VICKSELL,FRONA B. ;  
REPT. NO. SCIENTIFIC-2  
CONTRACT: F19628-70-C-0120  
MONITOR: AFCRL 72-0698

UNCLASSIFIED REPORT

DESCRIPTORS: (\*COMPUTER PROGRAMMING, GRAPHICS), COMPUTER  
PROGRAMS, CONTROL SEQUENCES, DISPLAY SYSTEMS, MEMORY  
DEVICES, ERRORS

(U)

IDENTIFIERS: FORTRAN, \*COMPUTERS, \*GRAPHICS,  
\*INTERACTIONS, COMPUTERS, GRAPHICS

(U)

GRAPPAC, A PACKAGE OF FORTRAN SUBROUTINES  
FACILITATING USE OF THE 6000 SERIES 274 INTERACTIVE  
GRAPHICS SYSTEM OF THE CONTROL DATA  
CORPORATION, IS DESCRIBED AND PROGRAMMING EXAMPLES  
ARE GIVEN. GRAPPAC MANAGES AN OUTPUT BUFFER FOR  
INTERACTIVE GRAPHICS SYSTEM DISPLAY CREATION.  
IT ALSO KEEPS A RECORD OF THE DISPLAYS CREATED, IN  
LOGICAL GROUPINGS OF ARBITRARY SIZE DETERMINED BY THE  
PROGRAMMER; THE PROGRAMMER CAN LATER CALL FOR ERASURE  
OF ANY GROUP. CALLING SEQUENCES ARE SHORT AND  
SIMPLE. COORDINATE TRANSFORMATIONS ARE AUTOMATIC.  
THERE ARE LINEAR AND LOGARITHMIC AXIS ROUTINES AND  
GRID LINE GENERATORS. ALPHANUMERIC INPUT FROM THE  
CONSOLE IS FACILITATED, WITH FORMAT ERRORS MADE NON-  
FATAL. ERROR TRACEBACKS ARE PROVIDED. IN  
ADDITION, LOW LEVEL CALCOMP PLOTTING ROUTINES HAVE  
BEEN SIMULATED SO THAT HIGHER LEVEL CALCOMP  
ROUTINES CAN BE USED WITHIN THE INTERACTIVE  
GRAPHICS SYSTEM FRAMEWORK. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 755 491 9/2  
MICHIGAN UNIV ANN ARBOR PERFORMANCE MODELING GROUP

RANDOM PARTIALLY PRE-LOADED PAGE  
REPLACEMENT ALGORITHMS.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,  
JUN 72 36P GELENBE,SAMI E. ;  
REPT. NO. PMG-72-5  
CONTRACT: N00014-67-A-0181-0036  
PROJ: NR-049-311

UNCLASSIFIED REPORT

DESCRIPTORS: (\*COMPUTER PROGRAMMING, REPLACEMENT  
THEORY), MULTIPLEXING, MEMORY DEVICES, STOCHASTIC  
PROCESSES, CONTROL SEQUENCES, ALGORITHMS, MATHEMATICAL  
MODELS, THEOREMS (U)  
IDENTIFIERS: \*COMPUTER STORAGE MANAGEMENT (U)

THE REPLACEMENT PROBLEM ARISES IN COMPUTER SYSTEM  
MANAGEMENT WHENEVER THE EXECUTABLE MEMORY SPACE  
AVAILABLE IS INSUFFICIENT TO CONTAIN ALL DATA AND  
CODE WHICH MAY BE ACCESSED DURING THE EXECUTION OF AN  
ENSEMBLE OF PROGRAMS. AN EXAMPLE OF THIS IS THE  
PAGE REPLACEMENT PROBLEM IN VIRTUAL MEMORY COMPUTERS.  
THE PROBLEM IS SOLVED BY USING A REPLACEMENT  
ALGORITHM WHICH SELECTS CODE OR DATA ITEMS WHICH ARE  
TO BE REMOVED FROM EXECUTABLE MEMORY WHENEVER NEW  
ITEMS MUST BE BROUGHT IN AND NO MORE FREE STORAGE  
SPACE REMAINS. AN AUTOMATON THEORETIC MODEL OF  
REPLACEMENT ALGORITHMS IS INTRODUCED FOR THE CLASS OF  
'RANDOM, PARTIALLY PRE-LOADED' REPLACEMENT  
ALGORITHMS, WHICH CONTAINS CERTAIN ALGORITHMS OF  
PRACTICAL AND THEORETICAL INTEREST. AN ANALYSIS OF  
THIS CLASS IS PROVIDED IN ORDER TO EVALUATE THEIR  
PERFORMANCE, USING THE ASSUMPTION THAT THE REFERENCES  
TO THE ITEMS TO BE STORED ARE IDENTICALLY DISTRIBUTED  
INDEPENDENT RANDOM VARIABLES. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 755 492

9/2

MICHIGAN UNIV ANN ARBOR PERFORMANCE MODELING GROUP

CORE COMPLEMENT POLICIES FOR MEMORY  
ALLOCATION AND ANALYSIS.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,  
AUG 72 33P KIMBLETON,STEPHEN R. ;  
REPT. NO. PMG-72-6  
CONTRACT: N00014-67-A-0181-0036  
FROJ: NR-049-311

UNCLASSIFIED REPORT

DESCRIPTORS: (\*DATA PROCESSING,  
PERFORMANCE(ENGINEERING)), (\*DATA STORAGE SYSTEMS,  
OPTIMIZATION), (\*COMPUTERS, MATHEMATICAL MODELS),  
SYSTEMS ENGINEERING, OPERATION, STOCHASTIC PROCESSES,  
MATHEMATICAL MODELS  
IDENTIFIERS: STATISTICAL PROCESSES, PAGED ENVIRONMENT,  
PERFORMANCE EVALUATION, \*COMPUTER STORAGE MANAGEMENT,  
COMPUTERIZED SIMULATION

(U)

(U)

A PRIMARY OBJECTIVE IN MODELING COMPUTER SYSTEMS IS  
THE PREDICTION OF SYSTEM PERFORMANCE AS A FUNCTION OF  
THE VARIOUS POLICIES WHICH MAY BE USED TO ALLOCATE  
SYSTEM RESOURCES. THE TWO PRIMARY RESURCES OF A  
COMPUTER SYSTEM ARE THE CPU(S) AND THE MEMORY  
HIERARCHY (MH). CPU ALLOCATION POLICIES HAVE  
BEEN EXTENSIVELY STUDIED AS HAVE MEMORY MANAGEMENT  
POLICIES FOR TWO LEVEL VIRTUAL MEMORY SYSTEMS.  
HOWEVER, ALLOCATION POLICIES FOR A MULTILEVEL MH  
HAVING THREE OR MORE LEVELS HAVE RECEIVED RELATIVELY  
LITTLE ATTENTION. IN THIS PAPER A SINGLE STAGE  
POLICY FOR THE ALLOCATION OF INFORMATION DURING THE  
LIFETIME OF A PROCESS EXECUTING IN A PAGED  
ENVIRONMENT IS DEVELOPED. THIS POLICY IS SHOWN TO  
BE OPTIMAL FOR THE CASE OF A SINGLE PROCESS EXECUTING  
IN ISOLATION WHOSE REFERENCE STRING CAN BE  
CHARACTERIZED IN TERMS OF A SEMI-MARKOV PROCESS.  
(AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 755 502 13/8  
EDGEWOOD ARSENAL MD

APPLICATIONS IN COMPUTER-AIDED DESIGN AND  
NUMERICAL CONTROL MANUFACTURING USING  
AUTOMATED DRAFTING AND DIGITIZING.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT. JUL 71-SEP 72,  
JAN 73 84P PEARL, VERNON R. ;  
REPT. NO. EA-TR-4720  
PROJ: PEMA-4931.57.01217

UNCLASSIFIED REPORT

DESCRIPTORS: (\*MECHANICAL DRAWING, AUTOMATION),  
(\*MANUFACTURING, MECHANICAL DRAWING), MACHINE TOOLS,  
DESIGN, DATA PROCESSING, GRAPHICS, PUNCHED TAPE, MACHINE  
SHOP PRACTICE (U)

IDENTIFIERS: NUMERICAL CONTROLS, COMPUTER AIDED  
DESIGN, \*ENGINEERING DRAWINGS (U)

THE REPORT DISCUSSES AN AUTOMATED DRAFTING AND  
DIGITIZING SYSTEM FOR ARMY MATERIEL COMMAND  
(AMC). THIS SYSTEM WAS TO BE TESTED FOR ITS  
CAPABILITY IN PREPARING CONCEPT, EXPERIMENTAL,  
PROTOTYPE, AND PRODUCTION DRAWINGS. THE SYSTEM WAS  
ALSO STUDIED FOR ITS CAPABILITY OF PRODUCING  
NUMERICAL CONTROL (N/C) TAPES THROUGH A  
DIGITIZING PROCESS FOR PRODUCTION OF LIMITED QUANTITY  
SPARE REPAIR PARTS AND (RDTE) PROTOTYPE ITEMS.  
IN EXPLORING THE EQUIPMENT, THE SYSTEM WAS FOUND TO  
HAVE AN EXTREMELY HIGH POTENTIAL IN THE MAKING OF  
DRAWINGS, PRODUCING AND VERIFYING N/C TAPES,  
PERFORMING ENGINEERING CALCULATIONS, AND MANIPULATING  
NUMERICAL DATA INTO VARIOUS GRAPHIC FORMS. THE  
REPORT CONTAINS VARIOUS EXAMPLES AND ILLUSTRATIONS  
THAT HAVE BEEN PRODUCED BY THE AUTOMATIC DRAFTING AND  
DIGITIZING SYSTEM. THE ACCOMPLISHMENTS ACHIEVED  
THROUGH THE USE OF THIS EQUIPMENT HAVE RESULTED IN A  
SIGNIFICANT COST REDUCTION. IT IS, THEREFORE,  
CONCLUDED THAT THIS PROJECT HAS BEEN HIGHLY  
SUCCESSFUL, AND THE PURCHASE OF SUCH EQUIPMENT IS  
HIGHLY RECOMMENDED TO OTHER GOVERNMENT AGENCIES TO  
HELP REDUCE LONG ENGINEERING LEAD TIMES AND ACHIEVE  
SUBSTANTIAL COST SAVINGS. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 756 475 9/2  
TEXAS UNIV AUSTIN ELECTRONICS RESEARCH CENTER

SEQUENCING STRATEGIES IN PIPELINE COMPUTER SYSTEMS.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,  
AUG 72 120P REDDI, SREERANGAPALLE  
SRINIVASULU ;RAMAMOORTHY; C. V. ;  
REPT. NO. TR-134  
CONTRACT: F44620-71-C-0091, NSF-GJ-28452  
PROJ: AF-4751  
MONITOR: AFOSR TR-72-1952

UNCLASSIFIED REPORT

DESCRIPTORS: (\*DATA PROCESSING, SCHEDULING), MEMORY DEVICES, DIGITAL COMPUTERS, COMPUTER PROGRAMMING, GRAPHICS, MATRICES(MATHEMATICS), MATHEMATICAL MODELS (U)  
IDENTIFIERS: PARALLEL PROCESSORS, RESOURCE ALLOCATION, SEQUENCING, GANTT CHARTS, COMPUTERIZED SIMULATION (U)

THE BASIC PRINCIPLES OF OPERATION OF PIPELINING IN COMPUTER SYSTEMS ARE EXAMINED AND A COMPREHENSIVE THEORY OF PIPELINE SYSTEMS IS PRESENTED. A CLASSIFICATION SCHEME FOR THE PIPELINE SYSTEMS IS PROPOSED AND INVESTIGATED. PRESENT PRACTICE OF COMPUTERS, EMPLOYING PIPELINING, IS REVIEWED AND DIRECTIONS FOR FUTURE PRACTICE ARE SUGGESTED. SIMULATION RESULTS ARE GIVEN FOR A SIMPLE PROPOSED PIPELINE SYSTEM, INCORPORATING THE DEVELOPED THEORY. PIPELINE SYSTEMS ARE COMPARED WITH OTHER COMPETING SYSTEMS TO JUDGE THE FUTURE OF THESE SYSTEMS. A PIPELINE COMPUTER SYSTEM IS A PROBLEM DEPENDENT METHOD USING CONCURRENT PROCESSING OF INDEPENDENT TASKS IN A STREAM OF JOBS BY INDEPENDENT FUNCTIONAL UNITS. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 756 689 9/2 6/4  
MASSACHUSETTS INST OF TECH CAMBRIDGE PROJECT MAC

PROJECT MAC PROGRESS REPORT IX, JULY 1971  
TO JULY 1972.

(U)

DESCRIPTIVE NOTE: ANNUAL SCIENTIFIC REPT.,  
FEB 73 137P FREDKIN,EDWARD I  
CONTRACT: N00014-70-A-0362-0001, DAHC15-69-C-0347

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SPONSORED IN PART BY CONTRACTS  
N00014-70-A-0362-0004, N00014-69-A-0276-0002,  
F30602-72-C-0001 AND GRANT NSF-GJ-00432. SEE  
ALSO AD-735 148.

DESCRIPTORS: (\*COMPUTER PROGRAMMING, REPORTS), (\*DATA  
PROCESSING, REPORTS), (\*ARTIFICIAL INTELLIGENCE,  
REPORTS), COMPILERS, PROGRAMMING LANGUAGES, SYSTEMS  
ENGINEERING, MATHEMATICAL LOGIC, TIME SHARING, AUTOMATA,  
EDUCATION, GRAPHICS, MEMORY DEVICES, MULTIPLE OPERATIONS,  
MATHEMATICAL MODELS, MAN MACHINE SYSTEMS, NETWORKS,  
QUEUEING THEORY, COMPUTER LOGIC, REAL TIME (U)

IDENTIFIERS: MAC PROJECT, PARALLEL PROCESSORS,  
\*AUTOMATA, COMPUTATION, PETRI NETS, INFORMATION  
SYSTEMS, \*COMPUTERS, \*GRAPHICS, \*INTERACTIONS,  
COMPUTERS, GRAPHICS, COMPUTERS, NETWORKS, COMPUTER  
STORAGE MANAGEMENT (U)

;CONTENTS: AUTOMATIC PROGRAMMING;  
COMPUTATION STRUCTURES; COMPUTER SYSTEMS  
RESEARCH; DYNAMIC MODELING; COMPUTER GRAPHICS, AND  
COMPUTER NETWORKS; EDUCATIONAL COMPUTER SYSTEMS;  
MATHLAB; PLANNER; SIMPL; THEORY OF  
AUTOMATA. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 756 729 9/2  
MASSACHUSETTS COMPUTER ASSOCIATES INC WAKEFIELD

COMPILER DESIGN FOR THE ILLIAC IV. (U)

DESCRIPTIVE NOTE: SEMI-ANNUAL TECHNICAL REPT. NO. 6, 14  
JUL 72-13 FEB 73,  
FEB 73 190P MILLSTEIN, ROBERT E. ;  
REPT. NO. CADD-7302-2011  
MONITOR: AROD 9187.8-A

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO REPORT DATED 13 JUL 72,  
AD-748 226.

DESCRIPTORS: (\*COMPILERS, DESIGN), (\*COMPUTER  
PROGRAMMING, INSTRUCTION MANUALS), ALGORITHMS, SHIFT  
REGISTERS, MEMORY DEVICES, PERMUTATIONS, CONTROL  
SEQUENCES (U)

IDENTIFIERS: PROGRAMMING MANUALS, FORTRAN, ILLIAC,  
\*ILLIAC 4 COMPUTER (U)

THE REPORT CONTAINS SPECIFICATIONS AND ALGORITHMS  
FOR COMPILER DESIGN FOR THE ILLIAC 4 COMPUTER.  
THE IMPLEMENTATION OF THE FORTRAN COMPILER  
IVTRAN IS DESCRIBED. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 756 961 9/2  
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

'URAL' GENERAL-PURPOSE AUTOMATIC DIGITAL  
COMPUTER (PROGRAMMING INSTRUCTIONS, STORAGE  
UNITS, BOOK 1: GENERAL INFORMATION), (U)

FEB 73 39P KONOPLYA, N. M. ;  
REPT. NO. FTD-MT-24-1680-72

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED MACHINE TRANS. OF MONO.  
UNIVERSALNYE AVTOMATICHESKIE TSIFROVYE  
VYCHISLITELNYE MASHINY 'URAL' INSTRUKTSIYA PO  
PROGAMMIROVANIYU NAKOPITELI KNIGA 1. OBSHCHIE  
SVEDENIYA PSO.170.007.12, N.P., 1969 NI PI-23, BY  
BERNARD L. TAUBER.

DESCRIPTORS: (\*COMPUTER PROGRAMMING, INSTRUCTION  
MANUALS), DIGITAL COMPUTERS, MEMORY DEVICES, MAGNETIC  
TAPE, CODING, USSR (U)

IDENTIFIERS: TRANSLATIONS, \*URAL COMPUTERS (U)

THE REPORT REPRESENTS PART OF THE PROGRAMMING  
INSTRUCTIONS FOR 'URAL' TYPE COMPUTERS AND CONTAINS  
GENERAL INFORMATION ON THE MAGNETIC TAPE, DRUM, DISC  
AND FERRITE CORE STORAGE UNITS USED AS MEMORY DEVICES  
IN THESE COMPUTERS. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 757 181 9/2  
COMPUTER CORP OF AMERICA CAMBRIDGE MASS

DATA COMPUTER PROJECT SEMI-ANNUAL TECHNICAL  
REPORT, FEBRUARY 1, 1972 TO JULY 31, 1972. (U)

72 59P  
CONTRACT: DAHCO4-71-C-0011, ARPA ORDER-1731

UNCLASSIFIED REPORT

DESCRIPTORS: (\*DATA PROCESSING, NETWORKS), DATA  
TRANSMISSION SYSTEMS, INPUT OUTPUT DEVICES, INFORMATION  
RETRIEVAL, COMPUTER PROGRAMMING (U)  
IDENTIFIERS: ARPA COMPUTER NETWORK, PDP-10 COMPUTERS,  
\*COMPUTERS, \*NETWORKS, COMPUTER STORAGE  
MANAGEMENT (U)

THE GOAL OF THE PROJECT IS THE DEVELOPMENT OF A  
SHARED, LARGE-SCALE DATA SYSTEM FOR THE ARPA  
COMMUNITY. THE SYSTEM MAY BE VIEWED AS A BOX THAT  
PERFORMS THE FUNCTIONS OF DATA STORAGE AND DATA  
MANAGEMENT ON BEHALF OF MULTIPLE COMPUTERS  
SIMULTANEOUSLY CONNECTED TO THE BOX. THE TOPICS  
DISCUSSED IN THE REPORT INCLUDE THE FOLLOWING:  
HARDWARE INSTALLATION; SOFTWARE DESIGN AND  
IMPLEMENTATION; COORDINATION ACTIVITIES; AND  
WORKING PAPER NO. 5, 'DATACOMPUTER SOFTWARE  
ARCHITECTURE--REVISION 1'. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 757 495 9/2 5/2  
TEXAS UNIV AUSTIN ELECTRONICS RESEARCH CENTER

IMPROVEMENT IN A SYSTEM'S THROUGHPUT--FROM THE  
STANDPOINT OF FILE ORGANIZATION AND SEARCHING  
STRATEGIES.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,  
SEP 72 162P CHIN,YEH-HAO RAMAMOORTHY,  
C. V.;  
REPT. NO. TR-137  
CONTRACT: F44620-71-C-0091, NSF-GJ-28452  
PROJ: AF-4751  
MONITOR: AFOSR TR-72-2014

UNCLASSIFIED REPORT

DESCRIPTORS: (\*DATA PROCESSING, \*INFORMATION RETRIEVAL),  
SEARCH THEORY, ALGORITHMS, MATHEMATICAL LOGIC, DECISION  
THEORY, CONVEX SETS, MATHEMATICAL MODELS, THEOREMS (U)  
IDENTIFIERS: RESOURCE ALLOCATION, \*FILE STRUCTURES,  
INFORMATION SYSTEMS, \*COMPUTER STORAGE MANAGEMENT (U)

EVEN AFTER TWO DECADES OF COMMERCIAL AVAILABILITY  
OF THE COMPUTER, THE 'POTENTIALITY' OF THE DIGITAL  
SYSTEM HAS BEEN USED MERELY 65 PERCENT OR LESS.  
THE REASONS FOR INEFFICIENT USE ARISE PARTLY FROM  
INEFFICIENT DESIGN OF SYSTEM SOFTWARE RATHER THAN  
LIMITATIONS DUE TO HARDWARE. FILE ORGANIZATION AND  
THE STRUCTURE OF MEMORY HIERARCHY ARE PORTIONS OF THE  
TOTAL MEMORY MANAGEMENT SYSTEM WHICH IS THE MOST  
INFLUENTIAL FACTOR OF A DIGITAL SYSTEM'S THROUGHPUT.  
IN THIS REPORT THE CASE OF A LARGE FILE IS  
CONSIDERED IN WHICH THE FREQUENCY OF USE OF ITS  
COMPONENT SUBFILES ARE KNOWN. THE ORGANIZATION OF  
THE FILE IS DEVELOPED SO THAT THE AVERAGE NUMBER OF  
ENTRIES TO LOCATE K (>1) ITEMS AT A TIME IN IT BY  
MEANS OF BINARY SEARCH OR SEQUENTIAL SEARCH IS  
MINIMIZED. THE METHODS ARE USED TO SOLVE THE  
REALISTIC PROBLEM OF DESIGNING AN OPTIMAL MEMORY  
HIERARCHY TO HOLD THE FILE IN A COMPUTER SYSTEM.  
(AUTHOR MODIFIED ABSTRACT) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 757 686 9/2  
COMPUTER CORP OF AMERICA CAMBRIDGE MASS

NETWORK DATA HANDLING SYSTEM.

(U)

DESCRIPTIVE NOTE: SEMIANNUAL TECHNICAL REPT. 1 AUG 72-31  
JAN 73,

JAN 73 37P MARILL,THOMAS ;  
CONTRACT: DAHC04-71-C-0011, ARPA ORDER-1731  
MONITOR: AROD 9816:2-A

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: REPORT ON DATACOMPUTER  
PROJECT.

DESCRIPTORS: (\*DATA PROCESSING, NETWORKS), (\*PROGRAMMING  
LANGUAGES, DESIGN), (\*DATA STORAGE SYSTEMS,  
PERFORMANCE(ENGINEERING)), DATA TRANSMISSION SYSTEMS.  
INFORMATION RETRIEVAL, WEATHER COMMUNICATIONS, COMPUTER  
PROGRAMMING (U)

IDENTIFIERS: INFORMATION SYSTEMS, \*COMPUTERS,  
\*NETWORKS, COMPUTER STORAGE MANAGEMENT (U)

THE REPORT DESCRIBES THE ACTIVITIES FOR THE PERIOD  
1 AUG 1972 - 31 JAN 1973. THE ACTIVITY ON THE  
PROJECT HAS CENTERED ON DEVELOPMENT OF THE FIRST  
SOFTWARE RELEASE, INITIAL SYSTEM DEMONSTRATION,  
COORDINATION WITH POTENTIAL USERS, AND WORK ON A  
GLOBAL WEATHER DATA BASE. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 758 204 9/2  
HARVARD UNIV CAMBRIDGE MASS

A SPACE-EFFICIENT LIST STRUCTURE TRACING  
ALGORITHM,

(U)

JUN 72 11P WEGBREIT,BEN I  
CONTRACT: F19628-71-C-0174, ARPA ORDER-952  
MONITOR: ESD TR-72-309

UNCLASSIFIED REPORT

DESCRIPTORS: \*(COMPUTER PROGRAMMING, ALGORITHMS), DATA  
STORAGE SYSTEMS, OPERATION

(U)

IDENTIFIERS: \*COMPUTER STORAGE MANAGEMENT

(U)

THE NOTE PRESENTS AN ALGORITHM FOR TRACING DURING  
GARBAGE COLLECTION OF LIST STRUCTURE. IT REQUIRES  
ONLY ONE BIT FOR EACH LEVEL OF DOUBLY BRANCHING  
STRUCTURE TRACED. COMPARED TO EXISTING TRACE  
ALGORITHMS, IT GENERALLY REQUIRES LESS STORAGE --  
OFTEN, SUBSTANTIALLY LESS. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 758 243 9/2  
TEXAS UNIV AUSTIN ELECTRONICS RESEARCH CENTER

SOME DIAGNOSTIC APPROACHES FOR COMPUTER  
SYSTEM DESIGN.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,  
AUG 72 101P CHANG, LIH-CHUNG ;  
RAMAMOORTHY, C. V. ;  
REPT. NO. TR-133  
CONTRACT: F44620-71-C-0091, NSF-GJ-28452  
PROJ: AF-4751  
MONITOR: AFOSR TR-72-1911

UNCLASSIFIED REPORT

DESCRIPTORS: (\*DATA PROCESSING,  
RELIABILITY(ELECTRONICS)), COMPUTER PROGRAMMING,  
SWITCHING CIRCUITS, GATES(CIRCUITS), GRAPHICS,  
MATHEMATICAL LOGIC, ITERATIONS, THEOREMS

(U)

IDENTIFIERS: MICROPROGRAMMING, ARITHMETIC AND LOGIC  
UNITS, GRAPHS, SWITCHING THEORY, COMPUTERS, FAULT  
DETECTION

(U)

THE PURPOSE OF THE REPORT IS TWOFOLD; FIRSTLY, IT  
ATTEMPTS TO SURVEY SOME BASIC IDEAS AND PRACTICES IN  
THE AREA OF FAULT-TOLERANT COMPUTING. AND SECONDLY,  
IT ATTEMPTS TO MOLD THESE INTO A THEORETICAL  
FRAMEWORK THAT COULD HELP IN DEVELOPING BOTH DESIGN  
STRATEGIES AND TESTING PROCEDURES FOR COMPUTING  
SYSTEMS. A DIAGNOSTIC THEORY IS GIVEN WHICH CAN  
CHARACTERIZE THE RELATIONSHIPS BETWEEN TESTS AND  
FAULTS PROPERLY. BASED ON THIS THEORY, SEVERAL  
EFFECTIVE PROCEDURES ARE DEVELOPED FOR THE DETECTION  
AND LOCATION OF FAULTS. A STRUCTURAL MODEL OF THE  
COMPUTER SYSTEM IS CONSTRUCTED BY THE APPLICATION OF  
GRAPH THEORY. IN THIS MODEL, BLOCKING GATE  
APPROACH IS USED TO GENERATE TEST PATHS FOR THE  
DIAGNOSTICS OF THIS SYSTEM. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 759 189 9/2 9/1  
ROCKWELL INTERNATIONAL CORP ANAHEIM CALIF ELECTRONICS  
GROUP

SURVIVABLE P-CHANNEL METAL-OXIDE-  
SEMICONDUCTOR (PMOS) COMPUTER DESIGN. (U)

DESCRIPTIVE NOTE: FINAL REPT. 20 MAR-20 SEP 72,  
MAR 73 134P BUTCHER,DARYL T. ;MADDOX,  
HOWARD M. ;NIELSEN,ROBERT L. ;  
REPT. NO. C72-446/501  
CONTRACT: F33615-72-C-1732  
PROJ: AF-3176  
MONITOR: AFAL TR-73-31

UNCLASSIFIED REPORT

DESCRIPTORS: (\*INTEGRATED CIRCUITS, DAMAGE),  
(\*COMPUTERS, RELIABILITY(ELECTRONICS)), LOGIC CIRCUITS,  
VULNERABILITY, MEMORY DEVICES, INPUT OUTPUT DEVICES,  
POWER SUPPLIES, GUIDED MISSILE COMPUTERS, (U)GUIDED  
MISSILE COMPUTERS (U)

IDENTIFIERS: LARGE SCALE INTEGRATED CIRCUITS, METAL  
OXIDE SEMICONDUCTORS, AVIONICS, CENTRAL PROCESSING  
UNITS, RADIATION HARDENING, COMPUTERS (U)

THE SIGNIFICANCE OF THIS PROJECT TO THE AIR  
FORCE IS THE FACT THAT IT PROVIDES ASSESSMENT, AND  
DEVELOPS SPECIFICATIONS FOR EMPLOYMENT, OF ADVANCED  
RADIATION-HARDENED FIELD-EFFECT 41-E., METAL-  
OXIDE-SEMICONDUCTOR (MOS) AND METAL-  
NITRIDE-OXIDE-SEMICONDUCTOR (MNOS)5

TECHNOLOGIES FOR MILITARY/SPACE COMPUTER SYSTEMS.  
THE CHARACTERISTICS AND CAPABILITIES OF THE DEVICE  
AND PACKAGING TECHNOLOGIES, REQUIRED FOR MOS/MNOS  
COMPUTER CONSTRUCTION, ARE DEFINED AND COMPARED TO  
THE TECHNIQUES AND HARDWARE REQUIREMENTS FOR LONG-  
LIFE COMPUTER SYSTEMS. A COMPUTER ARCHITECTURE IS  
DERIVED FROM THE COMPARISON ANALYSIS. (AUTHOR  
MODIFIED ABSTRACT) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 759 348 9/2  
NAVAL RESEARCH LAB WASHINGTON D C

A LIBRARY MANAGEMENT PROGRAM FOR THE 813  
DISK FILE.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,  
MAR 73 46P TOOTHMAN, HAROLD L. ;  
REPT. NO. NRL-MR-2570, NRL-COMPUTER BULL-31  
PROJ: NRL-D01-03-A

UNCLASSIFIED REPORT

DESCRIPTORS: (\*COMPUTER PROGRAMS, MEMORY DEVICES),  
INFORMATION RETRIEVAL, MAGNETIC TAPE, PUNCHED CARDS,  
ALGORITHMS

(U)

IDENTIFIERS: MAGNETIC DISKS, CDC 3800 COMPUTERS,  
FORTRAN

(U)

RANDISK IS A CDC 3800 FORTRAN AND ASSEMBLY  
LANGUAGE PROGRAM WHICH ALLOWS THE STORAGE OF DATA,  
AND SOURCE AND OBJECT LANGUAGE FILES ON THE 813 DISK  
FILE BY A USER ASSIGNED NAME. THESE FILES CAN BE  
RECALLED BY NAME AND TRANSFERRED TO A LOGICAL UNIT  
FOR FURTHER USE. THE USER HAS SOME CONTROL OF  
LOGICAL UNITS UNDER RANDISK AND MAY DOCUMENT HIS  
LIBRARY ON TAPE RAPIDLY. DATA COMPRESSION OF CARD  
IMAGE FILES CAN BE PERFORMED. THE SOURCE LANGUAGE  
LISTING IS INCLUDED. (AUTHOR MODIFIED  
ABSTRACT)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 759 367 9/2  
NAVAL UNDERWATER SYSTEMS CENTER NEWPORT R I

THE ORGANIZATION AND CONTROL OF A SLAVE  
MEMORY HIERARCHY.

(U)

DESCRIPTIVE NOTE: RESEARCH REPT.,  
FEB 73 122P GORDON,ROBERT L. ;  
REPT. NO. NUSC-TR-4429  
PROJ: NUSC-A-916-00, ZFXX-112  
TASK: ZFXX-112-001

UNCLASSIFIED REPORT

DESCRIPTORS: (\*DATA STORAGE SYSTEMS, OPTIMIZATION),  
MATHEMATICAL MODELS, INFORMATION RETRIEVAL, COMPUTER  
PROGRAMMING (U)

IDENTIFIERS: GPSS PROGRAMMING LANGUAGE, IBM 360  
COMPUTERS, \*COMPUTER STORAGE MANAGEMENT, COMPUTERIZED  
SIMULATION (U)

A LOGICAL AND PHYSICAL ORGANIZATION OF A COMPUTER  
MEMORY SYSTEM THAT COMPLETELY AUTOMATES THE STORING  
AND MOVING OF INFORMATION IS OUTLINED. INFORMATION  
USED BY THE COMPUTER PHYSICALLY RESIDES IN AN OPEN-  
ENDED HIERARCHY OF MEMORY DEVICES IN WHICH EACH  
DEVICE IS RESPONSIBLE FOR THE MANAGEMENT OF ITS OWN  
CONTENTS. ALL MEMORIES IN THE HIERARCHY ARE  
'SLAVED' TO THE PRIMARY MEMORY, BECAUSE ACTIVITY IN  
THE PRIMARY MEMORY TRIGGERS ACTIVITY AT THE OTHER  
LEVELS. (AUTHOR MODIFIED ABSTRACT) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 759 545 9/2  
TEXAS UNIV AUSTIN ELECTRONICS RESEARCH CENTER

OPTIMAL SQUARE-ROOTING ALGORITHMS FOR  
HARDWARE IMPLEMENTATION.

(U)

DESCRIPTIVE NOTE: TECHNICAL MEMO.,  
DEC 72 107P KIM,KWANG HAE ;RAMAMOORTHY,  
C. V. ;  
REPT. NO. TM-37  
CONTRACT: F44620-71-C-0091, NSF-GJ-28452  
PROJ: AF-4751  
MONITOR: AFOSR TR-73-0682

UNCLASSIFIED REPORT

DESCRIPTORS: (\*COMPUTER PROGRAMMING, TRANSCENDENTAL  
FUNCTIONS), ALGEBRA, ALGORITHMS, ITERATIONS, THESES (U)  
IDENTIFIERS: ARITHMETIC AND LOGIC UNITS, COMPUTATION,  
IBM 360/91 COMPUTERS, SQUARE ROOTS (U)

THE MAIN OBJECTIVE OF THIS THESIS IS THE  
COMPREHENSIVE ANALYSIS AND SYNTHESIS WITH THE  
HARDWIRED SQUARE-ROOTING, BELIEVED TO BE THE FIRST  
SUBJECT TO BE IMPLEMENTED AMONG VARIOUS FUNCTIONS  
WHICH ARE BEING EVALUATED MOSTLY IN SOFTWARE AT  
PRESENT. TWO NEW EFFICIENT ALGORITHMS FOR  
HARDWIRED SQUARE-ROOTING, HERE CALLED THE ALGORITHM  
G AND ALGORITHM T, HAVE BEEN DEVELOPED AND  
PRESENTED IN THE MOST DETAIL. THESE USE  
MULTIPLICATION AND NO DIVISION. FURTHERMORE,  
ALGORITHM G POSSESSES THE PROPERTY OF QUADRATIC  
CONVERGENCE, A VERY IMPORTANT ONE FOR THE MACHINE OF  
LARGE WORD LENGTH AS FAR AS SPEED IS CONCERNED.  
ALGORITHM T IS SUITABLE FOR THE MACHINE OF MEDIUM  
WORD LENGTH. (AUTHOR MODIFIED ABSTRACT) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 759 710 9/2  
NAVAL ELECTRONICS LAB CENTER SAN DIEGO CALIF

A HARD-WIRED FAST FOURIER TRANSFORM  
PROCESSOR USING AX+B MODULES.

(U)

DESCRIPTIVE NOTE: RESEARCH AND DEVELOPMENT REPT. FEB-  
SEP 72,  
FEB 73 38P WASILEWSKI, J. W.  
REPT. NO. NELC-TR-1860  
PROJ: NELC-R207

UNCLASSIFIED REPORT

DESCRIPTORS: (\*DATA PROCESSING, MODULES(ELECTRONICS)),  
ANALOG-TU-DIGITAL CONVERTERS, LOGIC CIRCUITS, POWER  
SPECTRA, MEMORY DEVICES (U)

IDENTIFIERS: ARITHMETIC AND LOGIC UNITS, SIGNAL  
PROCESSING, FOURIER TRANSFORMATION, FAST FOURIER  
TRANSFORM (U)

A SIGNAL PROCESSOR WAS BUILT USING ONE IDENTICAL  
BUILDING BLOCK IN THE PROCESSING UNIT. THE DESIGN  
UTILIZES MODULARITY AS WELL AS MICROPROGRAMMED  
CONTROL. THE UNIT TRANSFORMS 64 INPUT SAMPLES INTO  
64 FOURIER COEFFICIENT EACH WITH A WORD LENGTH OF 9  
BITS. THE RESULTING COMPLEX COEFFICIENTS ARE  
SQUARED AND DISPLAYED ON A SCOPE. THE ARCHITECTURE  
OF THE PROCESSOR MAKES POSSIBLE A HIGH-SPEED  
UTILIZATION OF HARDWARE. A PROVISION IS MADE TO  
SCALE THE PARTIAL RESULTS. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 760 171 11/3  
BRITISH COLUMBIA UNIV VANCOUVER DEPT OF ELECTRICAL  
ENGINEERING

PLASMA ANODIZATION.

(U)

DESCRIPTIVE NOTE: FINAL REPT. 21 JUN 71-20 JUN 72,  
NOV 72 50P PULFREY,DAVID L. ; YOUNG,  
LAWRENCE ;OLIVE,GRAHAM ;  
CONTRACT: F33615-71-C-1886  
MONITOR: AFAL TR-72-362

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO REPORT DATED MAR 71, AD-  
722 490.

DESCRIPTORS: (\*ANODIC COATINGS, PLASMA MEDIUM),  
(\*DIELECTRIC FILMS, PLASMA MEDIUM), TANTALUM, NIOBIUM,  
SILICON DIOXIDE, THIN FILM STORAGE DEVICES, CANADA (U)  
IDENTIFIERS: METAL OXIDE SEMICONDUCTORS, \*ANODIC  
COATINGS, SEMICONDUCTOR COMPUTER STORAGE, THIN FILMS (U)

THE PROCESS OF PLASMA ANODIZATION HAS BEEN  
INVESTIGATED USING TWO SYSTEMS. THE FIRST WAS A  
COLD CATHODE DC DISCHARGE SYSTEM (REPLACING  
APPARATUS DESCRIBED IN OUR EARLIER REPORTS) WITH  
AUTOMATED ELLIPSOMETRY TO CONTINUOUSLY FOLLOW THE  
GROWTH OF THE OXIDE. THE SECOND SYSTEM EMPLOYED AN  
R.F. DISCHARGE WITH GROWTH OF THE OXIDE BEING  
FOLLOWED BY MONITORING THE INTENSITY REFLECTIVITY OF  
S-LIGHT FROM A HE/NE LASER. EXPERIMENTS ARE  
DESCRIBED WHICH INDICATE THAT NEGATIVE OXYGEN IONS  
FORM THE PLASMA ARE NOT DIRECTLY INVOLVED IN THE  
GROWTH OF OXIDES ON TANTALUM IN A D.C. DISCHARGE.  
ALSO REPORTED ARE DATA ON THE THICKNESS-AND  
TEMPERATURE-DEPENDENCE OF THE RELATION BETWEEN OXIDE  
FIELD AND OXIDE GROWTH RATE FOR THE CASE OF SI  
ANODIZATION IN AN R.F. DISCHARGE. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 760 274 9/2  
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

THREE-SPEED TAPE PERFORATOR PL-75-100-150,

(U)

APR 73 8P KOVALENKO,N. P. ;FEDOROV,  
A. D. ;ZINCHENKO,A. F. ;  
REPT. NO. FTD-HT-23-0251-73  
PROJ: FTD-T71-05-09, FTD-T71-05-13

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. OF MEKHANIZATSIIA I  
AVTOMATIZATSIIA UPRAVLENIYA (USSR) N1 P46-47 1972, BY  
FRANCIS T. RUSSELL.

DESCRIPTORS: (\*INPUT OUTPUT DEVICES, DESIGN), PUNCHED  
TAPE, USSR (U)

IDENTIFIERS: \*TAPE PUNCHES, TRANSLATIONS (U)

TAPE PERFORATORS BELONG TO THE LIST OF VERY  
IMPORTANT DEVICES FOR THE OUTPUT OF INFORMATION FROM  
COMPUTERS AND AUTOMATIC SYSTEMS. THE REPORT  
DESCRIBES A THREE-SPEED TAPE PERFORATOR, PL-75-100-  
150 WHICH PROVIDES PERFORATION OF TAPE AT THREE  
SPEEDS. THE MAIN THING IN THE DEVELOPMENT AND  
STUDY OF THIS PERFORATOR WAS THE CREATION OF A BLOCK  
DIAGRAM OF CODE SELECTION WHICH PROVIDES TAPE  
PERFORATION AT ANY SPEED, I.E., FROM 0 TO 150 LINES/  
SECOND. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 760 296 9/2  
BROWN UNIV PROVIDENCE R I CENTER FOR COMPUTER AND  
INFORMATION SCIENCES

THE BROWN UNIVERSITY GRAPHICS  
SYSTEM(BUGS) OVERVIEW.

(U)

DESCRIPTIVE NOTE: TECHNICAL PAPER,  
FEB 73 35P STÄBLER,GEORGE M. ;  
CONTRACT: N00014-67-A-0191-0023, NSF-GJ-28401

UNCLASSIFIED REPORT

DESCRIPTORS: (\*DATA PROCESSING, GRAPHICS), INPUT OUTPUT  
DEVICES, DISPLAY SYSTEMS, SHIFT REGISTERS, COMPUTER  
PROGRAMMING (U)

IDENTIFIERS: MICROPROGRAMMING, ARITHMETIC AND LOGIC  
UNITS, COMPUTERS, GRAPHICS (U)

THE AIM OF THE DOCUMENT IS TO PROVIDE A UNIFIED  
OVERVIEW OF THE CURRENT RESEARCH ACTIVITIES OF THE  
BROWN UNIVERSITY GRAPHICS PROJECT. THE  
STATED OBJECTIVES OF THE PROJECT'S ACTIVITIES ARE AN  
INVESTIGATION INTO THE AREA OF MEDIUM-COST,  
MICROPROGRAMMABLE, INTELLIGENT GRAPHICS TERMINALS AND  
THE 'DIVISION OF LABOR' TRADE-OFFS BETWEEN A  
MAINFRAME PROCESSOR AND THE INTELLIGENT SATELLITE.  
A HIGH LEVELSYSTEM IMPLEMENTATION LANGUAGE AND A  
FACILITY FOR ONLINE SYMBOLIC DEBUGGING OF GRAPHIC  
DATA STRUCTURES ARE TO BE PROVIDED FOR SYSTEM  
IMPLEMENTERS AND USERS. ALSO OF INTEREST IS THE  
IMPACT WHICH MICROPROGRAMMING HAS ON THE DESIGN OF  
OTHER ASPECTS OF A GRAPHICS TERMINAL, FOR EXAMPLE,  
SYSTEM CONFIGURATION AND THE LOCAL OPERATING SYSTEM  
DESIGN. THE MOTIVATION AND AIMS OF THE PROJECT ARE  
DISCUSSED IN DETAIL. (MODIFIED AUTHOR  
ABSTRACT) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 760 305 9/2  
BROWN UNIV PROVIDENCE R I DIV OF APPLIED MATHEMATICS

THE SUPER INTEGRAL MICROPROGRAMMED  
ARITHMETIC LOGIC EXPEDITER (SIMALE), (U)

JAN 73 22P WEBBER, HAROLD H., JR;  
CONTRACT: N00014-67-A-0191-0023, NSF-GJ-28401  
PROJ: NR-049-334

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PUB. IN SIGMICRO, V3 N4 22P  
1973.

DESCRIPTORS: (\*DATA PROCESSING, GRAPHICS), INTERFACES,  
DISPLAY SYSTEMS, COMPUTER PROGRAMMING, SHIFT REGISTER(U)  
IDENTIFIERS: MICROPROGRAMMING, PARALLEL PROCESSORS,  
ARITHMETIC AND LOGIC UNITS, COMPUTERS, GRAPHICS (U)

THE PAPER DISCUSSES THE SIMALE WHICH IS A VERY  
HIGH SPEED, DYNAMICALLY MICROPROGRAMMED, PARALLEL  
PROCESSING COMPUTER. IT WILL SOON BE INTEGRATED  
INTO THE BROWN UNIVERSITY GRAPHICS SYSTEM  
WHERE IT WILL BE USED PRIMARILY FOR REAL-TIME PICTURE  
TRANSFORMATIONS. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 760 669 12/1 9/2  
NAVAL SHIP RESEARCH AND DEVELOPMENT CENTER BETHESDA  
MD

A COMPARATIVE STUDY OF SEVERAL CORE  
STORAGE SCHEMES FOR LARGE SPARSE POSITIVE  
DEFINITE MATRICES WITH REFERENCE TO THE  
CHOLESKY ALGORITHM,

(U)

NOV 72 38P GIGNAC, DONALD A. ;  
REPT. NO. NSRDC-4017  
PROJ: SR014-03  
TASK: SR014-03-01, 15322

UNCLASSIFIED REPORT

DESCRIPTORS: (\*MATRICES(MATHEMATICS), \*COMPUTER  
PROGRAMMING), COMPILERS, MEMORY DEVICES, ALGORITHMS (U)  
IDENTIFIERS: CHOLESKY DECOMPOSITION, \*SPARSE MATRIX,  
FINITE ELEMENT ANALYSIS, FORTRAN, STRUCTURAL  
ANALYSIS (U)

IN THE FINITE ELEMENT APPROACH TO STATIC STRUCTURAL  
ANALYSIS, THE SOLUTION OF THE EQUATION  $KU = P$  A  
POSITIVE DEFINITE SYSTEM OF SIMULTANEOUS LINEAR  
EQUATIONS, IS BASIC. CONSIDERABLE DIFFICULTY MAY  
BE EXPERIENCED WHEN  $K$  IS VERY LARGE AND SPARSE.  
THE REPORT DOCUMENTS AN INVESTIGATION OF SEVERAL  
FORTRAN SUBROUTINES IN ORDER TO OBTAIN AN EFFICIENT  
CHOLESKY ALGORITHM SUBROUTINE WITH ECONOMICAL CORE  
STORAGE FOR AN IN-CORE SOLUTION OF  $KU = P$  FOR  
LARGE SPARSE  $K$ . (MODIFIED AUTHOR ABSTRACT) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 760 954 9/2  
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

GENERAL PURPOSE AUTOMATIC DIGITAL COMPUTER  
URAL-14 TECHNICAL DESCRIPTION.

(U)

APR 73 120P  
REPT. NO. FTD-MT-24-1677-72

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED MACHINE TRANS. OF MONO.  
UNIVERSALNYE AVTOMATICHESKIE TSIFROVYE  
VYCHISLITELNYE MASHINY URAL-14 TEKHNIKheskoe  
OPISANIE PSO-170-008TO. SISTEMA KOMAND, N.P.,  
1968 N2 P1-67, BY CHARLES T. OSTERTAG, JR.

DESCRIPTORS: (\*DIGITAL COMPUTERS, INSTRUCTION MANUALS),  
DATA STORAGE SYSTEMS, SHIFT REGISTERS, MAGNETIC TAPE,  
COMPUTER PROGRAMMING, USSR (U)

IDENTIFIERS: ARITHMETIC AND LOGIC UNITS,  
TRANSLATIONS (U)

THE INSTRUCTION SYSTEM FOR THE URAL-14 COMPUTER  
CONTAINS UP TO 230 INSTRUCTIONS AND CAN BE CHANGED  
DEPENDING ON THE CONFIGURATION OF THE COMPUTER.  
THE DESCRIPTION INCLUDES: A DESCRIPTION OF THE  
GROUP OF DATA-TRANSFER AND ARITHMETIC OPERATIONS; A  
DESCRIPTION OF THE GROUP OF THE OPERATIONS PERFORMED  
BY THE CONTROL UNIT ON THE BASIS OF CONTROL  
INSTRUCTIONS; A DESCRIPTION OF THE GROUPS OF  
OPERATIONS PERFORMED BY THE COMPUTER DURING THE  
SERVICING OF INPUT-OUTPUT UNITS AND DATA STORAGE  
UNITS; A DESCRIPTION OF SERVICE OPERATIONS. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 761 172 9/2  
STANFORD UNIV CALIF DIGITAL SYSTEMS LAB

A SIMULATOR FOR COMPUTER SYSTEMS WITH STORAGE  
UNITS HAVING ROTATIONAL DELAYS.

(U)

DESCRIPTIVE NOTE: TECHNICAL NOTE,  
AUG 72 23P FULLER, SAMUEL H. ;  
REPT. NO. TN-16  
CONTRACT: N00014-67-A-0112-0044, AT-(04-3)-515

UNCLASSIFIED REPORT

DESCRIPTORS: (\*MEMORY DEVICES, SCHEDULING), (\*DATA  
STORAGE SYSTEMS, SIMULATION), COMPUTER PROGRAMS,  
INSTRUCTION MANUALS, PERFORMANCE(ENGINEERING) (U)  
IDENTIFIERS: MAGNETIC DISKS, MAGNETIC DRUMS, SIMULATOR  
ROUTINES, FORTRAN, IBM 360 COMPUTERS, COMPUTERIZED  
SIMULATION (U)

THE NOTE DESCRIBES A SIMULATOR FOR COMPUTER SYSTEMS  
WITH SECONDARY STORAGE UNITS HAVING ROTATIONAL  
DELAYS, I.E., DRUMS AND DISKS. THIS SIMULATOR IS  
ABLE TO MODEL A WIDE RANGE OF DRUMS AND DISKS AND IS  
PRIMARILY INTENDED TO BE USED TO STUDY ALTERNATIVE  
SCHEDULING DISCIPLINES FOR ROTATING STORAGE DEVICES.  
A DISCUSSION IS INCLUDED ON THE PRECISION OF THE  
SUMMARY STATISTICS OF THE SIMULATOR, AND A SHORT  
USER'S GUIDE IS PROVIDED TO AID OTHERS IN THE USE OF  
THE SIMULATOR. THE REPORT INCLUDES SOME IBM 360  
FORTRAN LISTINGS FOR THE MAIN SIMULATOR LOOP.  
(MODIFIED AUTHOR ABSTRACT) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 761 175 9/2  
STANFORD UNIV CALIF STANFORD ELECTRONICS LABS

PERFORMANCE OF AN I/O CHANNEL WITH MULTIPLE  
PAGING DRUMS. (DIGEST EDITION). (U)

DESCRIPTIVE NOTE: TECHNICAL REPT. NO. 27,  
AUG 72 9P FULLER, SAMUEL H. ;  
REPT. NO. SU-SEL-73-010, STAN-CS-73-351  
CONTRACT: N00014-67-A-0112-0044, AT-(04-3)515  
PROJ: AF-7101

UNCLASSIFIED REPORT

DESCRIPTORS: (\*MEMORY DEVICES, OPTIMIZATION),  
SCHEDULING, PERFORMANCE(ENGINEERING), STOCHASTIC  
PROCESSES, MATHEMATICAL MODELS (U)

IDENTIFIERS: \*MAGNETIC DRUMS, MARKOV CHAINS, PAGED  
ENVIRONMENT (U)

FOR ROTATING STORAGE UNITS, A PAGING DRUM  
ORGANIZATION IS KNOWN TO OFFER SUBSTANTIALLY BETTER  
RESPONSE TIME TO I/O REQUESTS THAN IS A MORE  
CONVENTIONAL (FILE) ORGANIZATION. WHEN SEVERAL,  
ASYNCHRONOUS PAGING DRUMS ARE ATTACHED TO A SINGLE  
I/O CHANNEL, HOWEVER, MUCH OF THE GAIN IN  
RESPONSE TIME DUE TO THE PAGING ORGANIZATION IS LOST;  
THIS ARTICLE INVESTIGATES THE REASONS FOR THIS LOSS  
IN PERFORMANCE. A MODEL OF AN I/O CHANNEL WITH  
MULTIPLE PAGING DRUMS IS PRESENTED AND A MARKOV  
CHAIN THAT CLOSELY APPROXIMATES THE BEHAVIOR OF THE  
I/O CHANNEL IS EMBEDDED INTO THE MODEL. THE  
ANALYSIS THEN LEADS TO THE MOMENT GENERATING FUNCTION  
OF SECTOR QUEUE SIZE AND THE LAPLACE-STIELTJES  
TRANSFORM OF THE WAITING TIME. A SIGNIFICANT  
OBSERVATION IS THAT THE EXPECTED WAITING TIME FOR AN  
I/O REQUEST TO A DRUM CAN BE DIVIDED INTO TWO  
TERMS: ONE INDEPENDENT OF THE LOAD OF I/O  
REQUEST TO THE DRUM AND ANOTHER THAT MONOTONICALLY  
INCREASES WITH INCREASING LOAD. (MODIFIED AUTHOR  
ABSTRACT) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 761 176 9/2  
STANFORD UNIV CALIF STANFORD ELECTRONICS LABS

THE EXPECTED DIFFERENCE BETWEEN THE SHORTEST LATENCY TIME FIRST (SLTF) AND MINIMAL TOTAL PROCESSING TIME (MTPT) DRUM SCHEDULING DISCIPLINES.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT. NO. 28,  
AUG 72 7P FULLER, SAMUEL H.;  
REPT. NO. SU-SEL-73-011, STAN-CS-72-352  
CONTRACT: N00014-67-A-0112-0044, AT-(04-3)515  
PROJ: AF-7101

UNCLASSIFIED REPORT

DESCRIPTORS: (\*MEMORY DEVICES, SCHEDULING), ALGORITHMS,  
SIMULATION (U)  
IDENTIFIERS: \*MAGNETIC DRUMS, RANDOM WALK (U)

THE REPORT IS A SEQUEL TO AN EARLIER REPORT (FULLER, 1971) THAT DEVELOPS A MINIMAL-TOTAL-PROCESSING-TIME (MTPT) DRUM SCHEDULING ALGORITHM. A QUANTITATIVE COMPARISON BETWEEN MTPT SCHEDULES AND SHORTEST-LATENCY-TIME-FIRST (SLTF) SCHEDULES, COMMONLY ACKNOWLEDGED AS GOOD SCHEDULES FOR DRUM-LIKE STORAGE UNITS, IS PRESENTED HERE. THE ANALYSIS DEVELOPS AN ANALOGY TO RANDOM WALKS AND PROVES SEVERAL ASYMPTOTIC PROPERTIES OF COLLECTIONS OF RECORDS ON DRUMS. THESE PROPERTIES ARE SPECIALIZED TO THE MTPT AND SLTF ALGORITHMS AND IT IS SHOWN THAT FOR SUFFICIENTLY LARGE SETS OF RECORDS, THE EXPECTED PROCESSING TIME OF A SLTF SCHEDULE IS LONGER THAN A MTPT SCHEDULE BY THE EXPECTED RECORD LENGTH. THE RESULTS OF A SIMULATION STUDY ARE ALSO PRESENTED TO SHOW THE DIFFERENCE IN MTPT AND SLTF SCHEDULES FOR SMALL SETS OF RECORDS AND FOR SITUATIONS NOT COVERED IN THE ANALYTIC DISCUSSION.

(AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 761 185 9/2  
STANFORD UNIV CALIF STANFORD ELECTRONICS LABS

RANDOM ARRIVALS AND MINIMAL TOTAL  
PROCESSING TIME (MTPT) DISK SCHEDULING  
DISCIPLINES.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT. NO. 29,  
AUG 72 1OP FULLER, SAMUEL H. ;  
REPT. NO. SU-SEL-73-012, STAN-CS-73-353  
CONTRACT: N00014-67-A-0112-0044, AT-(04-3)515  
PROJ: AF-7101

UNCLASSIFIED REPORT

DESCRIPTORS: (\*MEMORY DEVICES, SCHEDULING), ALGORITHM (U)  
IDENTIFIERS: \*MAGNETIC DRUMS, MAGNETIC DISKS (U)

THE ARTICLE INVESTIGATES THE APPLICATION OF  
MINIMAL-TOTAL-PROCESSING TIME (MTPT) SCHEDULING  
DISCIPLINES TO ROTATING STORAGE UNITS WHEN RANDOM  
ARRIVAL OF REQUESTS IS ALLOWED. FIXED-HEAD DRUM AND  
MOVING-HEAD DISK STORAGE UNITS ARE CONSIDERED AND  
PARTICULAR EMPHASIS IS PLACED ON THE RELATIVE MERITS  
OF THE MTPT SCHEDULING DISCIPLINE WITH RESPECT TO  
THE SHORTEST-LATENCY-TIME-FIRST (SLTF) SCHEDULING  
DISCIPLINE. THE DATA PRESENTED ARE THE RESULTS OF  
SIMULATION STUDIES. SITUATIONS ARE DISCOVERED IN  
WHICH THE MTPT DISCIPLINE IS SUPERIOR TO THE SLTF  
DISCIPLINE, AND SITUATIONS ARE ALSO DISCOVERED IN  
WHICH THE OPPOSITE IS TRUE. AN IMPLEMENTATION OF  
THE MTPT SCHEDULING ALGORITHM IS PRESENTED AND THE  
COMPUTATIONAL REQUIREMENTS OF THE ALGORITHM ARE  
DISCUSSED. IT IS SHOWN THAT THE SORTING PROCEDURE  
IS THE MOST TIME CONSUMING PHASE OF THE ALGORITHM.  
(AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 761 520 9/2  
AUERBACH CORP PHILADELPHIA PA

DM-1 IMPLEMENTATION.

(U)

DESCRIPTIVE NOTE: FINAL REPT. AUG 69-DEC 72,  
MAR 73 97P MUHLHAUSER,ROBERT R. ;  
CONTRACT: F30602-69-C-0193  
MONITOR: RADC TR-73-68

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: REPORT ON DATA MANAGER-1 (DM-1).

DESCRIPTORS: (\*COMPUTER PROGRAMMING, INSTRUCTION MANUALS), DATA STORAGE SYSTEMS, INFORMATION RETRIEVAL, PROGRAMMING LANGUAGES (U)  
IDENTIFIERS: JOVIAL, \*COMPUTER STORAGE MANAGEMENT, DATA MANAGEMENT, DATA BASES (U)

UNDER CONTRACT NO. F30602-69-C-0193 WITH ROME AIR DEVELOPMENT CENTER (RADC), AUERBACH ASSOCIATES, INC., HAS BEEN DEVELOPING DATA MANAGER (DM-1), A COMPREHENSIVE DATA BASE MANAGEMENT SYSTEM. THIS EFFORT, INITIATED IN EARLY 1969, HAS NOW PRODUCED A BASE-LINE SYSTEM WHICH IS UNDERGOING TEST AND EVALUATION IN THE RADC LABORATORY. THIS FINAL REPORT SUMMARIZES THAT EFFORT, ENTITLED DM-1 IMPLEMENTATION. DM-1 HAS BEEN IMPLEMENTED ON A HONEYWELL G-635 (FORMERLY THE GE-635) UNDER THE GCOS-III OPERATING SYSTEM. THE BASE-LINE SYSTEM WHICH IS NOW OPERATIONAL OFFERS COMPREHENSIVE DATA AND JOB HANDLING FACILITIES TO COMMAND-LEVEL USERS, AS WELL AS APPLICATIONS PROGRAMMERS. SECTION 1 OF THIS REPORT OUTLINES THE DESIGN REQUIREMENTS AND IMPLEMENTATION GUIDELINES WHICH GOVERNED THE IMPLEMENTATION EFFORT. SECTION DESCRIBES DM-1/G-635 AS IT HAS BEEN IMPLEMENTED. SECTION 3 OFFERS AUERBACH CONCLUSIONS AND RECOMMENDATIONS WITH RESPECT TO THE EFFORT. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 762 774 9/2  
CALIFORNIA UNIV LOS ANGELES CALIF DEPT OF COMPUTER  
SCIENCE

MEASUREMENT DATA ON THE WORKING SET  
REPLACEMENT ALGORITHM AND THEIR APPLICATIONS,

(U)

72 12P OLIVER,N. ; CHU,W. W. ;  
OPDERBECK,H. ;  
CONTRACT: N00014-69-A-0200-4927, DAHC15-69-C-0285  
PROJ: NR-048-129

UNCLASSIFIED REPORT  
AVAILABILITY: PUB. IN PROCEEDINGS OF THE  
SYMPOSIUM ON COMPUTER-COMMUNICATIONS NETWORKS AND  
TELETRAFFIC, POLYTECHNIC INSTITUTE OF BROOKLYN, 4-6  
APR 72, PI13-124 1972.

DESCRIPTORS: (\*DATA PROCESSING, TIME SHARING), (\*DATA  
STORAGE SYSTEMS, QUEUEING THEORY), ALGORITHMS,  
SCHEDULING (U)

IDENTIFIERS: MULTIPROGRAMMING, PAGED ENVIRONMENT,  
\*COMPUTER STORAGE MANAGEMENT (U)

PAGE INTER-REFERENCE INTERVAL DISTRIBUTION, AVERAGE  
PAGE FAULT FREQUENCY (THE FREQUENCY OF THOSE  
INSTANCES AT WHICH AN EXECUTING PROGRAM REQUIRES A  
PAGE OF DATA OR INSTRUCTIONS NOT IN THE MAIN  
MEMORY) AVERAGE WORKING SET SIZE AND INTER-PAGE  
FAULT-TIME (TIME BETWEEN PAGE FAULT) DISTRIBUTION  
FOR A SIMULATED WORKING SET REPLACEMENT  
ALGORITHM FOR THREE TYPICAL PROGRAMS WITH DIFFERENT  
SIZES WERE MEASURED ON THE UCLA SIGMA EXECUTIVE  
(SEX) TIME-SHARING SYSTEM VIA PAGE REFERENCE  
STRINGS. THESE MEASURED RESULTS ARE REPORTED IN  
THIS PAPER. THE AVERAGE PAGE FAULT FREQUENCY  
RELATIONSHIPS BETWEEN MEASURED RESULTS ARE REPORTED  
IN THIS PAPER. THE AVERAGE PAGE FAULT FREQUENCY  
RELATIONSHIPS BETWEEN WORKING SET PARAMETERS AND  
PROCESS SCHEDULING ARE DISCUSSED. THESE  
RELATIONSHIPS ARE USEFUL IN PLANNING THE WORKING SET  
SIZE AND PROCESS SCHEDULING WHICH OPTIMIZE SYSTEM  
EFFICIENCY. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 763 086 9/2 20/12  
CAMBRIDGE MEMORIES INC NEWTONVILLE MASS MAGNETIC THIN FILM  
DEVELOPMENT DEPT

RESEARCH IN FERROMAGNETICS: DOMAIN TIP  
DEVICES. (U)

DESCRIPTIVE NOTE: FINAL REPT. 1 JAN-31 DEC 72,  
JAN 73 103P SPAIN,ROBERT J. ;JAUVTIS,  
HARVEY I. ;CORWIN,FRANK ;  
REPT. NO. 976-F  
CONTRACT: F19628-72-C-0134  
PROJ: AF-5632  
TASK: 563202  
MONITOR: AFCRL TR-73-0175

UNCLASSIFIED REPORT

DESCRIPTORS: (\*THIN FILM STORAGE DEVICES,  
MANUFACTURING), (\*SHIFT REGISTERS, DESIGN),  
FERROMAGNETIC MATERIALS, METAL FILMS, SUBSTRATES,  
ALUMINUM, DEFECTS(MATERIALS), MULTIPLEXING,  
OPERATION (U)

IDENTIFIERS: MAGNETIC DOMAINS, MAGNETIC FILMS, BLOCK  
ORIENTED RANDOM ACCESS MEMORIES, BORAM(BLOCK ORIENTED  
RANDOM ACCESS MEMORY), RANDOM ACCESS COMPUTER STORAGE,  
THIN FILMS (U)

THE DESIGN AND OPERATION OF THE DOT BLOCKING TYPE  
SHIFT REGISTER IS DESCRIBED AND THE RESULTS OF TIP  
BLOCKING EXPERIMENTS PRESENTED. AN ELECTRONIC  
TECHNIQUE FOR DETERMINING THE POSITION OF A CHANNEL  
DEFECT IS DISCUSSED. DEFECT SIZE IS ALSO  
CONSIDERED. ALUMINUM UNDERLAYER STUDIES WERE  
PERFORMED WITH AN OPTICAL INSTRUMENT CALLED THE  
3ALUMINUM MEASURING INSTRUMENT3 (AMI).  
THE EFFECT OF PROCESS CHEMICALS ON ALUMINUM FILMS  
WAS ALSO STUDIED. AN OPTICAL MAGNETIC FILM  
THICKNESS MEASUREMENT TECHNIQUE IS DESCRIBED. A  
GENERAL COMPARISON OF THE DOT AND OTHER STORAGE  
TECHNOLOGIES IS PRESENTED. THE DOT AND BUBBLE  
ARE EXAMINED IN MORE DETAIL. DOT SHIFT REGISTER  
TECHNIQUES ARE DESCRIBED. THESE INCLUDE INPUT AND  
OUTPUT MULTIPLEXING AND NDRO SHIFT REGISTERS.

(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 763 224 9/2  
AUTONETICS ANAHEIM CALIF

SINGLE CRYSTAL CYLINDRICAL MAGNETIC DOMAIN  
MATERIALS FOR MEMORY APPLICATIONS.

(U)

DESCRIPTIVE NOTE: SEMI-ANNUAL REPT. 1 JUN 72-31 MAR  
73.

JUL 73 158P GEORGE, P. K. I  
REPT. NO. C70-1144/501  
CONTRACT: DAAB07-70-C-0258  
PROJ: DA-1-H-062101-A-327  
TASK: 1-H-062101-A-32701  
MONITOR: ECOM 0258-4-70

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO REPORT DATED SEP 72, AD-  
749 267.

DESCRIPTORS: (\*THIN FILM STORAGE DEVICES, GARNET),  
(\*DATA STORAGE SYSTEMS, FEASIBILITY STUDIES), (\*SHIFT  
REGISTERS, DESIGN), MAGNETIC MATERIALS, MAGNETIC  
PROPERTIES, MATHEMATICAL MODELS, MANUFACTURING, YTTRIUM  
COMPOUNDS, FERRATES, SILICON DIOXIDE, INTEGRAL  
EQUATIONS

(U)

IDENTIFIERS: YTTRIUM IRON GARNETS, \*MAGNETIC BUBBLE  
DOMAINS, MAGNETIC DOMAINS, MAGNETIC FILMS, PERMALLOYS,  
FREDHOLM EQUATIONS, THIN FILMS

(U)

THE FIRST PART OF THE REPORT DESCRIBES A TWO-  
DIMENSIONAL MATHEMATICAL MODEL CURRENTLY BEING USED  
TO DESCRIBE FIELD ACCESS BUBBLE DOMAIN PROPAGATION.  
THE MODEL IS BASED UPON A CONTINUOUS IN-PLANE  
MAGNETIZATION DISTRIBUTION IN THE PERMALLOY WHICH IS  
DETERMINED BY MINIMIZING THE SYSTEM ENERGY-ASSUMED TO  
CONSIST OF ZEEMAN AND MAGNETOSTATIC ENERGY  
CONTRIBUTIONS. THE NUMERICAL TECHNIQUES REQUIRED TO  
SOLVE THE RESULTING COUPLED FREDHOLM INTEGRAL  
EQUATIONS ARE DESCRIBED AS WELL AS THE COMPLETE  
COMPUTER PROGRAM USED TO ANALYZE PROPAGATION IN  
REALISTIC PERMALLOY PATTERNS. RESULTS ARE PRESENTED  
AND DISCUSSED FOR BUBBLE PROPAGATION ALONG A 90  
DEGREE CHEVRON, A T-BAR AND A Y-BAR. THE  
SECOND PART OF THIS REPORT DESCRIBES THE DESIGN AND  
CONSTRUCTION OF A HIGH-FREQUENCY MULTIPLE-BAR-  
CHEVRON SHIFT REGISTER. EACH OF THE INDIVIDUAL  
COMPONENTS - GENERATOR, TRACK, DETECTOR, ANNIHILATOR  
- ARE DESCRIBED ALONG WITH THE EXPERIMENTS USED TO  
DESIGN THEM. (MODIFIED AUTHOR ABSTRACT)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 763 234

9/2

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

PROGRAMMING INSTRUCTIONS. CENTRAL PROCESSING  
UNITS. SYSTEM OF INSTRUCTIONS. PART

I.

(U)

APR 73 336P

REPT. NO. FTD-MT-24-1676-72

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED MACHINE TRANS. OF MONO.  
UNIVERSALNYE AVTOMATICHEISKIE TSIFROVYE  
VYCHISLITELNYE MASHINY 'URAL-14' INSTRUKTSIYA PO  
PROGRAMMIROVANIYU CHAST' I TSENTRALNYE USTROISTVA.  
SISTEMA KOMAND PSO.170.001 I N1, N.P., 1968 P1-181,  
BY BERNARD L. TAUBER, AND CHARLES T. OSTERTAG,  
JR.

DESCRIPTORS: (\*COMPUTER PROGRAMMING, INSTRUCTION  
MANUALS), (\*DIGITAL COMPUTERS, \*USSR), MEMORY DEVICES,  
INPUT OUTPUT DEVICES, PROGRAMMING LANGUAGES,

ALGORITHMS

(U)

IDENTIFIERS: ARITHMETIC AND LOGIC UNITS, CENTRAL  
PROCESSING UNITS, \*PROGRAMMING MANUALS, TRANSLATIONS,  
COMPUTER INFORMATION SECURITY, COMPUTERS

(U)

THE BOOK IS PART OF THE PROGRAMMING INSTRUCTIONS  
FOR THE 'URAL-14' ELECTRONIC DIGITAL COMPUTER AND  
IS DEVOTED TO A DESCRIPTION OF THE ELEMENTARY BLOCK  
DIAGRAM OF THE COMPUTER, THE SYSTEM OF INSTRUCTIONS  
FOR THE CENTRAL UNITS, AND THE DETAILED ALGORITHMS  
FOR THE EXECUTION OF OPERATIONS IN THESE UNITS.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 764 363 9/2 12/2  
SYRACUSE UNIV N Y

ASSOCIATIVE PROCESSING IN THE SOLUTION OF  
NETWORK PROBLEMS.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,  
MAY 73 263P ORLANDO, VINCENT A. ;  
CONTRACT: F30602-72-C-0281  
MONITOR: RADC TR-73-156

UNCLASSIFIED REPORT

DESCRIPTORS: (\*DATA PROCESSING, OPERATIONS RESEARCH),  
MEMORY DEVICES, ALGORITHMS, MATHEMATICAL MODELS,  
NETWORKS, COMPUTER PROGRAMS, MULTIPLE OPERATION,  
THESES

(U)

IDENTIFIERS: \*NETWORK FLOWS, \*PARALLEL PROCESSORS,  
\*ASSOCIATIVE STORAGE, SHORTEST PATH METHOD, FORTRAN,  
FORTRAN 4 PROGRAMMING LANGUAGE, TRANSPORTATION MODELS,  
DATA MANAGEMENT

(U)

AN ASSOCIATIVE PROCESSOR IS A HIGHLY PARALLEL  
COMPUTER POSSESSING THE CAPABILITY OF ADDRESSING DATA  
FIELDS BY CONTENT AND PERFORMING LOGICAL AND  
ARITHMETIC OPERATIONS SIMULTANEOUSLY ON ALL STORAGE  
WORDS. CLASSICAL NETWORK PROBLEMS IN THE FIELD OF  
OPERATIONS RESEARCH EXHIBIT A NATURALLY ASSOCIATIVE  
DATA STRUCTURE AND HAVE COMPUTATIONAL REQUIREMENTS  
SIMILAR TO THE CAPABILITIES OF THE ASSOCIATIVE  
PROCESSOR. THE RESEARCH REPORTED IS A QUANTITATIVE  
EVALUATION OF THE APPLICABILITY OF THE ASSOCIATIVE  
PROCESSOR TO THE SOLUTION OF THIS CLASS OF PROBLEMS.  
SPECIFIC EXAMPLES EXAMINED ARE THE MINIMUM PATH,  
ASSIGNMENT, TRANSPORTATION, MAXIMUM FLOW AND MINIMUM  
COST FLOW PROBLEMS. THE RESULTS OF THIS RESEARCH  
EASILY SUPPORT THE CONCLUSION THAT THE ASSOCIATIVE  
PROCESSOR IS WELL SUITED TO THE SOLUTION OF THIS  
CLASS OF NETWORK PROBLEMS. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 764 897 9/2  
NAVAL SHIP RESEARCH AND DEVELOPMENT CENTER BETHESDA  
MD

DESIGN TRADE-OFFS FOR A SOFTWARE  
ASSOCIATIVE MEMORY,

(U)

MAY 73 56P BERKOWITZ, SIDNEY ;  
REPT. NO. NSRDC-3531  
PROJ: SR014-03  
TASK: SR014-03-01

UNCLASSIFIED REPORT

DESCRIPTORS: •DATA STORAGE SYSTEMS, SIMULATION),  
•COMPUTER PROGRAMMING, INFORMATION RETRIEVAL), MEMORY  
DEVICES, GRAPHICS, SEARCH THEORY (U)  
IDENTIFIERS: •ASSOCIATIVE STORAGE, FORTRAN, GRAPHS,  
COMPUTERIZED SIMULATION (U)

THE REPORT DESCRIBES AN ASSOCIATIVE (CONTENT-  
ADDRESSABLE) COMPUTER MEMORY SIMULATION, CALLED  
GIRS (GRAPH INFORMATION RETRIEVAL SYSTEM),  
DESIGNED TO HANDLE THE DYNAMIC INSERTION, RETRIEVAL,  
AND DELETION OF ARBITRARY SYMBOLIC OR NUMERIC DATA  
STRUCTURES. THE MAIN PURPOSE OF THE STUDY IS TO  
DEMONSTRATE FUNDAMENTAL TRADE-OFFS BETWEEN TIME,  
SPACE, COMPLEXITY, AND FLEXIBILITY IN THE FIELD-LEVEL  
OPERATION OF ANY ASSOCIATIVE MEMORY SIMULATION.  
SPECIFICALLY, THE PAPER CONCLUDES THAT: A  
REDUCTION OF RETRIEVAL TIME IS POSSIBLE AT THE COST  
OF A COMPLEX LINKAGE SCHEME AND SLOW INSERTION; THE  
DESIGN OF A RANDOM NODE GENERATOR CAN BE OPTIMIZED TO  
MATCH THE SCRAMBLING TRANSFORMATION AND REDUCE  
RETRIEVAL TIME; A DYNAMIC REORGANIZATION OF PAGES  
AND THE USE OF INFERENCE MECHANISMS CAN REDUCE THE  
NUMBER OF PAGE FETCHES AND HANDLE COMPLEX QUERIES  
WITH MINIMAL STORAGE. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 765 175 9/2 12/2  
MITRE CORP BEDFORD MASS

A THEORY OF STORAGE SIZING,

(U)

JUL 73 59P VOTAW, D. F. , JR;  
REPT. NO. MTR-2294  
CONTRACT: F19628-72-C-0002  
PROJ: AF-572R  
MONITOR: ESD TR-72-270

UNCLASSIFIED REPORT

DESCRIPTORS: (\*MEMORY DEVICES, DISTRIBUTION THEORY),  
QUEUEING THEORY, DATA PROCESSING, STOCHASTIC PROCESSES,  
RANDOM VARIABLES, STATISTICAL ANALYSIS, DIFFERENTIAL  
EQUATIONS, MATHEMATICAL MODELS (U)

THE RELATIONS BETWEEN THE SIZE OF A STORAGE  
FACILITY AND ITS CAPABILITY TO PERFORM ITS SERVICE OF  
STORAGE UNDER A STOCHASTIC LOAD ARE EXPLORED. THE  
SOLUTIONS THAT ARE DERIVED LEND GUIDANCE TO THE  
SIZING OF THE VARIOUS MEMORIES AND BUFFERS OF A  
COMPUTER SYSTEM. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 765 391 9/2  
ILLINOIS UNIV URBANA COORDINATED SCIENCE LAB

HIGH DENSITY OPTICAL MEMORY.

(U)

DESCRIPTIVE NOTE: ANNUAL REPT., 1 JUL 72-30 JUN 73.  
JUL 73 16P  
CONTRACT: N00014-67-A-0305-0015

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (\*DATA STORAGE SYSTEMS, OPTICAL EQUIPMENT),  
(\*MEMORY DEVICES, FEASIBILITY STUDIES), POTASSIUM  
COMPOUNDS, CHLORIDES, LOGIC CIRCUITS, SODIUM COMPOUNDS,  
FLUORIDES, X RAYS, COLOR CENTERS, ELECTRON IRRADIATION,  
SODIUM CHLORIDE (U)

IDENTIFIERS: OPTICAL CRYSTAL MEMORIES, OPTICAL STORAGE  
DEVICES, ACOUSTOOPTICS, INTERACTIONS, POTASSIUM  
CHLORIDE (U)

THE CONTINUED DEVELOPMENT OF THE PHOTOCHROMIC MEMORY  
HAS RESULTED IN THE DESIGN AND CONSTRUCTION OF A  
SECOND GENERATION KCL MEMORY SYSTEM AND AN  
ENHANCEMENT OF THE PERFORMANCE OF THE ORIGINAL  
SYSTEM. APPARATUS FOR COLORING MEMORY CRYSTALS BY  
MEANS OF ELECTRON BOMBARDMENT HAS BEEN DEVELOPED  
MAKING POSSIBLE THE MATCHING OF CRYSTAL THICKNESS TO  
THE DEPTH OF FIELD OF THE FOCUSING LENS. STUDIES OF  
KCL:NACL PROPERTIES INDICATE THAT THERMO-  
ELECTRIC COOLING UNITS MAY BE USED TO SIMPLIFY THE  
CRYOSTAT UNITS FOR HOUSING THE CRYSTAL. IN THE  
IMMEDIATE FUTURE, THE CONTROL LOGIC WILL BE  
INTEGRATED WITH THE NEW MEMORY. THIS WILL  
FACILITATE THE STORAGE AND RETRIEVAL OF A LARGE  
NUMBER OF BITS AND ALLOW INTERFACING THE MEMORY WITH  
A COMPUTER FOR LONG TERM, HIGH SPEED RELIABILITY  
TESTS. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 765 937 9/2  
TORONTO UNIV (ONTARIO) DEPT OF ELECTRICAL  
ENGINEERING

LOGIC ARRAY USING CHARGE-TRANSFER  
DEVICES.

(U)

SEP 72 2P MOK,T. D. ;SALAMA,C. A.  
T. ;

UNCLASSIFIED REPORT  
AVAILABILITY: PUB. IN ELECTRONICS LETTERS, V8  
N20, 5 OCT 72.

DESCRIPTORS: (\*MEMORY DEVICES, SEMICONDUCTOR DEVICES),  
SHIFT REGISTERS, LOGIC CIRCUITS, GATES(CIRCUITS),  
DESIGN, CANADA (U)

IDENTIFIERS: CHARGE COUPLED DEVICES, \*SEMICONDUCTOR  
COMPUTER STORAGE (U)

A LOGIC ARRAY THAT PERFORMS BOTH AND AND OR  
FUNCTIONS USING CHARGE-TRANSFER DEVICES IS PROPOSED.  
POTENTIAL BARRIERS ARE USED TO CONTROL THE  
DIRECTIONALITY OF CHARGE TRANSFER AND PERFORM THE  
LOGIC FUNCTIONS. THE BASIC OPERATION OF THE DEVICES  
IS DESCRIBED AND ILLUSTRATED USING 2-PHASE CHARGE-  
COUPLED DEVICES. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 766 279 9/2

SYRACUSE UNIV N Y DEPT OF ELECTRICAL AND COMPUTER  
ENGINEERING

PARALLEL PROCESSING CHARACTERISTICS AND  
IMPLEMENTATION OF DATA MANIPULATING  
FUNCTIONS.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,  
JUL 73 84P GENG-TSE-YUN ;  
CONTRACT: F30602-72-C-0281  
MONITOR: RADC TR-73-189

UNCLASSIFIED REPORT

DESCRIPTORS: (\*DATA PROCESSING, LOGIC CIRCUITS),  
SWITCHING CIRCUITS, SHIFT REGISTERS,

FUNCTIONS(MATHEMATICS), DESIGN, THEOREMS

(U)

IDENTIFIERS: LOGIC DESIGN, \*PARALLEL PROCESSORS,

ARITHMETIC AND LOGIC UNITS, ASSOCIATIVE STORAGE,

\*SEQUENTIAL CIRCUITS, ILLIAC 4 COMPUTERS

(U)

THE REPORT SHOWS THAT THERE EXISTS A CLASS OF  
FUNCTIONS, CALLED DATA MANIPULATING FUNCTIONS, IN  
SEQUENTIAL AS WELL AS PARALLEL PROCESSORS. THE  
CIRCUITS USED TO ACHIEVE THESE FUNCTIONS CAN BE  
CONSIDERED TO FORM AN INDEPENDENT FUNCTIONAL BLOCK,  
CALLED A DATA MANIPULATOR. A BASIC ORGANIZATION  
APPLICABLE TO BOTH SEQUENTIAL AND PARALLEL PROCESSORS  
IS THEN SUGGESTED. THE MAIN DEVIATION OF A  
PARALLEL PROCESSOR ORGANIZATION FROM THE CONVENTIONAL  
VON NEUMANN ORGANIZATION IS SEEN TO BE IN THE BIS  
(BIT-SLICE) MANIPULATING FUNCTIONS. A  
COMPREHENSIVE SET OF BIS MANIPULATING FUNCTIONS  
(CLASSIFIED IN FOUR CATEGORIES: PERMUTING,  
REPLICATING, SPACING AND MASKING) IS GIVEN. IN  
ADDITION, IT IS SHOWN THAT THE DATA MANIPULATOR  
DESIGNS PRESENTED IN THIS REPORT ARE EXTREMELY  
FLEXIBLE TO SUIT THE REQUIREMENTS OF VARIOUS PARALLEL  
PROCESSORS. (MODIFIED AUTHOR ABSTRACT)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 766 517 9/2  
LOGICON INC SAN PEDRO CALIF

AN EXAMINATION OF TWO FAULT-TOLERANT  
ARCHITECTURES,

(U)

AUG 73 214P LAURO, JOSEPH A. O'BRIEN,  
FRANK J. SWITZER, DAVID K. I  
REPT. NO. CSS-7332-R1410  
CONTRACT: F04701-72-C-0408  
MONITOR: SAMSO TR-73-273

UNCLASSIFIED REPORT

DESCRIPTORS: (\*COMPILERS, DESIGN), (\*LOGIC CIRCUITS,  
RELIABILITY), COMPUTER PROGRAMMING, INPUT OUTPUT  
DEVICES, SHIFT REGISTERS, FAILURE, DETECTION

(U)

IDENTIFIERS: ARITHMETIC AND LOGIC UNITS, FORTRAN,  
COMPUTERIZED SIMULATION, \*FAULT TOLERANT COMPUTING

(U)

TWO FAULT-TOLERANT COMPUTER DESIGNS WERE EXAMINED.  
FOR EACH DESIGN A FUNCTIONAL SIMULATOR WAS  
IMPLEMENTED AND AN EXECUTIVE PROGRAM, RECOVERY  
SOFTWARE, AND APPLICATION PROGRAM WAS CODED. THE  
MAJOR CONCERN IN THE EXECUTIVE PROGRAM DEVELOPMENT  
WAS THE HANDLING OF INPUT/OUTPUT AND INTERRUPTS IN  
THE PRESENCE OF FAULTS. SIMILARLY, THE DEVELOPMENT  
OF THE RECOVERY SOFTWARE REVEALED THAT THE  
PRESERVATION OF THE APPLICATION WAS MORE DIFFICULT  
THAN THE RECOVERY OF THE HARDWARE ITSELF. THE  
APPLICATION WAS SELECTED FROM THE TITAN 3C FLIGHT  
PROGRAM. A SIMPLE COMPILER WAS DEVELOPED TO  
GENERATE THE APPLICATION PROGRAM CODE AND  
AUTOMATICALLY INSERT ROLLBACK POINTS. THIS  
APPROACH ELIMINATED ANY CONCERN FOR FAULT TOLERANCE  
ON THE PART OF THE APPLICATION PROGRAMMER.  
HOWEVER, A SIGNIFICANT OVERHEAD IN TERMS OF MEMORY  
SPACE AND EXECUTION TIME DUE TO FAULT TOLERANCE  
RESULTED. EACH DESIGN WAS EXAMINED AT A FUNCTIONAL  
LEVEL RELATIVE TO ITS COMPUTATION CAPABILITIES AND  
EFFECTIVENESS IN PROVIDING FAULT TOLERANCE. WEAK  
POINTS WERE IDENTIFIED IN EACH DESIGN AND  
RECOMMENDATIONS FOR CORRECTING THEM WERE PROVIDED.  
NEITHER DESIGN COMPLETELY HANDLED CATASTROPHIC  
FAILURES. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 766 974 9/2  
STANFORD RESEARCH INST MENLO PARK CALIF

A STUDY OF FAULT-TOLERANT COMPUTING. (U)

DESCRIPTIVE NOTE: FINAL REPT. 12 JAN 72-15 MAY 73,  
JUL 73 228P NEUMANN, PETER G. ;GOLDBERG,  
JACK ;LEVITT, KARL N. ;WENSLEY, JOHN H. ;  
CONTRACT: N00014-72-C-0254, ARPA ORDER-1998  
PROJ: SRI-1693

UNCLASSIFIED REPORT

DESCRIPTORS: (\*DATA PROCESSING, MAINTENANCE),  
(\*COMPUTERS, RELIABILITY(ELECTRONICS)), REAL TIME,  
MULTIPLE OPERATION, LOGIC CIRCUITS,  
FAILURE(ELECTRONICS), FAILURE, COST EFFECTIVENESS,  
REDUNDANT COMPONENTS, DESIGN, STATE-OF-THE-ART REVIEWS,  
DATA STORAGE SYSTEMS (U)

IDENTIFIERS: LARGE SCALE INTEGRATED CIRCUITS,  
COMPUTERS, MULTIPLE OPERATION, ARITHMETIC AND LOGIC  
UNITS, VIRTUAL MEMORIES, COMPUTER SELF MAINTENANCE,  
\*FAULT TOLERANT COMPUTING, FAULT DETECTION (U)

THE REPORT PRESENTS THE RESULTS OF A STUDY OF  
FAULT-TOLERANT COMPUTING. EXISTING AND NEW  
ARCHITECTURAL TECHNIQUES ARE EVALUATED FOR USE IN  
COST-EFFECTIVE SYSTEMS ATTAINING DESIRED MEASURES OF  
CORRECTNESS, AVAILABILITY AND RECOVERY. VARIOUS  
ARCHITECTURES AND APPLICATIONS ARE CONSIDERED.  
APPENDICES CONTAIN A BRIEF CENSUS OF 35 FAULT-  
TOLERANT SYSTEMS, AND A CONCISE SURVEY OF 17  
REPRESENTATIVE SYSTEMS, AS WELL AS DETAILED RESULTS  
ON RELIABLE MEMORIES AND ARITHMETIC. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 768 024 9/2  
DEFENSE NUCLEAR AGENCY WASHINGTON D C

GENERALIZED INFORMATION RETRIEVAL LANGUAGE  
(GIRL): COMPUTER PROGRAM (CARD DECK). (U)

SEP 73 IV LONG, JOHN :

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: AVAILABLE TO NON-U.S. ADDRESSES  
\$219.00/DECK.

DESCRIPTORS: (\*COMPUTER PROGRAMMING, INFORMATION  
RETRIEVAL), PUNCHED CARDS (U)

IDENTIFIERS: GIRL PROGRAMMING LANGUAGE, DATA  
MANAGEMENT, COBOL, BURROUGHS 2500 COMPUTERS, BURROUGHS  
3500 COMPUTERS (U)

INCLUDED ARE 2046 CARDS FOR THE GENERALIZED  
INFORMATION RETRIEVAL LANGUAGE TO PERMIT THE  
NON-COMPUTER-ORIENTED PERSON TO ACCESS, SELECT, SORT,  
PRINT AND SUMMARIZE RECORDS THAT ARE ESTABLISHED ON  
TAPE, CARDS, OR DISK. (MODIFIED AUTHOR ABSTRACT) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 768 091 9/5 19/1  
HARRY DIAMOND LABS WASHINGTON D C

THIN-FILM HYBRID MICROCIRCUITRY. PART I.  
BOXCAR CIRCUIT FOR A CURRENT HDL FUSE  
SYSTEM.

(U)

DESCRIPTIVE NOTE: TECHNICAL MEMO.,  
MAY 73 17P EDWARDS, ADOLPH J. ;  
REPT. NO. HDL-TM-73-10  
PROJ: DA-1-X-263302-D-212, HDL-635921

UNCLASSIFIED REPORT

DESCRIPTORS: (\*INTEGRATED CIRCUITS, SAMPLING), VIDEO  
SIGNALS, DESIGN, MICROELECTRONICS, PHOTOENGRAVING,  
FILMS, FUZES(ORDNANCE)

(U)

IDENTIFIERS: THIN FILMS, COMPUTER AIDED DESIGN,  
\*HYBRID CIRCUITS, \*MICROMINIATURIZATION

(U)

A THIN-FILM HYBRID VERSION OF THE BOXCAR CIRCUIT  
FOR A CURRENT HARRY DIAMOND LABORATORIES FUZE  
SYSTEM WAS DEVELOPED. A SINGLE CIRCUIT WAS LAID  
OUT AND A COMPUTER PROGRAM WRITTEN TO GENERATE 4  
IDENTICAL CIRCUIT PATTERNS USING A COMPUTER-TAPE  
DRIVEN PLOTTER. THE RESISTOR-CONDUCTOR PATTERNS  
WERE PRODUCED BY STANDARD PHOTOLITHOGRAPHIC  
TECHNIQUES, AND DISCRETE CHIP DEVICES (DIODES,  
CAPACITORS, AND TRANSISTORS) WERE ATTACHED WITH  
CONDUCTING EPOXY CEMENT. CONNECTIONS TO THE CHIP  
DEVICES AND TO LEAD-OUT PINS WERE MADE BY  
THERMOCOMPRESSION WIRE BONDING TO COMPLETE THE  
CIRCUIT FABRICATION. PRELIMINARY ELECTRICAL TESTS  
INDICATED ACCEPTABLE INSERTION LOSSES OF  
APPROXIMATELY 0.6 DB AND HIGH-FREQUENCY ROLL-OFF  
POINTS IN THE EXPECTED FREQUENCY RANGE.

(AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 768 423 9/2  
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

CERTAIN ALGORITHMS OF ORGANIZATION OF  
COMPUTER MEMORY DISTRIBUTION,

(U)

OCT 73 19P TSULADZE, M. G. ;  
REPT. NO. FTD-HT-23-58-74  
PROJ: FTD-T74-05-12

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. OF VYCHISLITELNYI  
TSENTR, EREVAN. TRUDY (USSR) V10 N1 P58-72 1970, BY  
VICTOR MESENZEFF.

DESCRIPTORS: (\*COMPUTER PROGRAMMING, ALGORITHMS),  
MATHEMATICAL LOGIC, MEMORY DEVICES, CONTROL SEQUENCES,

USSR

(U)

IDENTIFIERS: TRANSLATIONS

(U)

CERTAIN ALGORITHMS OF ORGANIZATION OF COMPUTER  
MEMORY DISTRIBUTION--TRANSLATION.

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 768 651 8/7 8/9 13/2 9/2  
OHIO STATE UNIV RESEARCH FOUNDATION COLUMBUS

FINITE ELEMENT ANALYSIS OF STRESSES,  
DEFORMATIONS AND PROGRESSIVE FAILURE OF NON-  
HOMOGENEOUS FISSURED ROCK - COMPUTER  
PROGRAMS ON MAGNETIC TAPE.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,  
MAR 73 1V SANDHU,RANBIR S. ;  
REPT. NO. OSURF-3177-73-3F  
CONTRACT: H0210017, ARPA ORDER-1579  
PROJ: OSURF-3177

UNCLASSIFIED REPORT

AVAILABILITY: SPECIFY TAPE RECORDING MODE DESIRED;  
7 TRACK, 556 AND 800 BPI, ODD AND EVEN PARITY; OR 9  
TRACK, 800 BPI, ODD PARITY. INCLUDES AD-768 649  
(USERS MANUAL), AND AD-768 650 (COMPUTER  
PROGRAMS).

SUPPLEMENTARY NOTE:

DESCRIPTORS: (\*ROCK, MECHANICAL PROPERTIES),  
(\*UNDERGROUND STRUCTURES, STRESSES), (\*MAGNETIC TAPE,  
COMPUTER PROGRAMS), MINING ENGINEERING,  
FOUNDATIONS(STRUCTURES), CONSTRUCTION, DEFORMATION,  
ELASTIC PROPERTIES, PLASTIC PROPERTIES, CRACK  
PROPAGATION, FRACTURE(MECHANICS), FAILURE(MECHANICS) (U)  
IDENTIFIERS: FORTRAN, IBM 370/165 COMPUTERS, FINITE  
ELEMENT ANALYSIS (U)

THE OBJECTIVE OF THIS RESEARCH PROGRAM WAS  
DEVELOPMENT OF FINITE ELEMENT PROCEDURES FOR  
PREDICTION OF STRESSES AND DEFORMATIONS IN THE  
VICINITY OF UNDERGROUND EXCAVATION. THE MAGNETIC  
TAPE CONTAINS THE COMPUTER PROGRAMS WRITTEN IN  
FORTRAN FOR AN IBM 370/165 COMPUTER. (MODIFIED  
AUTHOR ABSTRACT) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 768 978 9/2  
SYRACUSE UNIV N Y

ASSOCIATIVE COMPUTATIONS OF SOME MATHEMATICAL  
PROBLEMS.

(U)

AUG 73 85P CHENG,WEI-TIH ;FENG,TSE-  
YUN ;  
CONTRACT: F30602-72-C-0281  
MONITOR: RADC TR-73-229

UNCLASSIFIED REPORT

DESCRIPTORS: (\*COMPUTER PROGRAMMING, NUMERICAL  
ANALYSIS), MEMORY DEVICES, INTEGRAL TRANSFORMS, FOURIER  
ANALYSIS, PARTIAL DIFFERENTIAL EQUATIONS,  
MATRICES(MATHEMATICS), LOGIC CIRCUITS, MULTIPLE  
OPERATION, SEARCH THEORY (U)

IDENTIFIERS: ASSOCIATIVE STORAGE, FAST FOURIER  
TRANSFORM, FOURIER TRANSFORMATION, ARITHMETIC AND  
LOGIC UNITS, PARALLEL PROCESSORS, ASSOCIATIVE  
PROCESSORS, COMPUTATION (U)

ASSOCIATIVE PROCESSING PROVIDES A NATURAL  
COMBINATION OF ARITHMETIC-LOGIC AND SEARCH-RETRIEVAL  
CAPABILITIES WHICH IS A DESIRED CHARACTERISTIC FOR  
MANY MATHEMATICAL PROBLEMS. IN THIS REPORT AN  
ASSOCIATIVE PROCESSOR WHICH HAS A DATA MANIPULATOR AS  
A SEPARATE FUNCTIONAL UNIT FOR PREPARING OPERANDS IS  
FIRST DESCRIBED. IN ORDER TO EVALUATE THE  
EFFECTIVENESS OF SUCH A SYSTEM, A NUMBER OF  
FUNDAMENTAL MATHEMATICAL PROBLEMS WHICH ARE USEFUL  
FOR A BROAD RANGE OF APPLICATIONS ARE STUDIED.  
THESE ARE, AMONG OTHERS, FAST FOURIER TRANSFORM,  
PARTIAL DIFFERENTIAL EQUATIONS, AND MATRIX  
OPERATIONS. NEW AND MODIFIED ALGORITHMS ARE  
DEVELOPED. INEFFICIENT WORD-SEQUENTIAL LOADING AND  
PROCESSING ARE MINIMIZED AND REDUNDANT STORAGE IS  
ELIMINATED. THE EXECUTION TIMES FOR SOLVING THESE  
MATHEMATICAL PROBLEMS UNDER VARIOUS CONDITIONS ARE  
COMPUTED, ANALYZED, AND COMPARED WITH THOSE REQUIRED  
BY TWO OTHER ASSOCIATIVE ORGANIZATIONS. IT IS  
SHOWN THAT WITH THE SIMPLEST ARITHMETIC-LOGIC UNITS  
AND BIS (BIT-SLICE)-SEQUENTIAL DATA MANIPULATING  
CAPABILITY ASSUMED IN THE PROPOSED ORGANIZATION, THE  
IMPROVEMENTS IN SYSTEM PERFORMANCE AND STORAGE  
REQUIREMENTS ARE SIGNIFICANTLY AND CONSISTENTLY  
BETTER THAN THOSE OF EXISTING TECHNIQUES.  
(MODIFIED AUTHOR ABSTRACT) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 770 552 9/2  
STANFORD UNIV CALIF STANFORD ELECTRONICS LABS

INTERCONNECTIONS FOR PARALLEL MEMORIES TO  
UNSCRAMBLE P-ORDERED VECTORS.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT. NO. 74,  
MAY 73 54P SWANSON, ROGER C. ;  
REPT. NO. SU-SEL-73-032, STAN-CS-73-388  
CONTRACT: N00014-67-A-0112-0044, NSF-GJ-1180  
PROJ: AF-6970, AF-6960

UNCLASSIFIED REPORT

DESCRIPTORS: \*PARALLEL PROCESSORS, \*MEMORY DEVICES,  
LOGIC CIRCUITS, CIRCUIT INTERCONNECTIONS, MODULAR

(U)

CONSTRUCTION, MATHEMATICAL LOGIC, THEOREMS

IDENTIFIERS: ILLIAC 4 COMPUTERS, \*LOGIC

(U)

DESIGN

SEVERAL METHODS ARE BEING CONSIDERED FOR STORING ARRAYS IN A PARALLEL MEMORY SYSTEM SO THAT VARIOUS USEFUL PARTITIONS OF AN ARRAY CAN BE Fetched FROM THE MEMORY WITH A SINGLE ACCESS. SOME OF THESE METHODS FETCH VECTORS IN AN ORDER SCRAMBLED FROM THAT REQUIRED FOR A COMPUTATION. THE PAPER CONSIDERS THE PROBLEM OF UNSCRAMBLING SUCH VECTORS WHEN THE VECTORS BELONG TO A CLASS CALLED P-ORDERED VECTORS AND THE MEMORY SYSTEM CONSISTS OF A PRIME NUMBER OF MODULES. PAIRS OF INTERCONNECTIONS ARE DESCRIBED THAT CAN UNSCRAMBLE P-ORDERED VECTORS IN A NUMBER OF STEPS THAT GROW AS THE SQUARE ROOT OF THE NUMBER OF MEMORIES. LOWER AND UPPER BOUNDS ARE GIVEN FOR THE NUMBER OF STEPS TO UNSCRAMBLE THE WORST CASE VECTOR. THE UPPER BOUND CALCULATION THAT IS DERIVED ALSO PROVIDES AN UPPER BOUND ON THE MINIMUM DIAMETER OF A STAR POLYGON WITH A FIXED NUMBER OF NODES AND TWO INTERCONNECTIONS. AN ALGORITHM IS GIVEN THAT HAS PRODUCED OPTIMAL PAIRS OF INTERCONNECTIONS FOR ALL SIZES OF MEMORY THAT HAVE BEEN TRIED. THE ALGORITHM APPEARS TO FIND OPTIMAL PAIRS FOR ALL MEMORY SIZES, BUT NO PROOF HAS YET BEEN FOUND.

(AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 771 175 9/2 6/12  
MICHIGAN UNIV ANN ARBOR DEPT OF ELECTRICAL  
ENGINEERING

FEASIBILITY OF EXECUTING MIMS ON INTERDATA  
80.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,  
OCT 73 43P BAUER, MICHAEL F. TIRANI,  
KEKI B.;  
CONTRACT: F30602-73-C-0001  
PROJ: AF-5581  
TASK: 558102  
MONITOR: RADC TR-73-301

UNCLASSIFIED REPORT

DESCRIPTORS: \*INFORMATION PROCESSING,  
\*MINICOMPUTERS, COMPUTER PROGRAMMING, FORTRAN,  
ALGORITHMS, MEDICAL SERVICES, FEASIBILITY  
STUDIES

(U)

IDENTIFIERS: INTERDATA 80 MINICOMPUTERS, CDC 6500  
COMPUTERS, CDC 6600 COMPUTERS, MIMS(MEDICAL  
INFORMATION MANAGEMENT SYSTEM), MEDICAL  
INFORMATION MANAGEMENT SYSTEM, FILE STRUCTURES,  
COMPUTER STORAGE MANAGEMENT

(U)

THE REPORT EXAMINES THE FEASIBILITY OF IMPLEMENTING  
LARGE INFORMATION MANAGEMENT SYSTEM ON MINI-  
COMPUTERS. THE MEDICAL INFORMATION  
MANAGEMENT SYSTEM AND THE INTERDATA 80 MINI-  
COMPUTER WERE SELECTED AS BEING REPRESENTATIVE  
SYSTEMS. THE FORTRAN PROGRAMS CURRENTLY BEING  
USED IN MIMS ARE VIEWED IN LIGHT OF THE LIMITATIONS  
OF THE INTERDATA MACHINE, AND IT IS DISCOVERED THAT  
IT WILL BE IMPOSSIBLE TO MAKE THEM WORK WITHOUT LARGE  
AND TIME-CONSUMING ALTERATIONS. IT IS CONCLUDED  
THAT IT IS POSSIBLE TO IMPLEMENT MIMS ON THE NEW  
MACHINE, BUT IT WILL BE MORE PRACTICAL TO DO SO BY  
WRITING NEW PROGRAMS, RATHER THAN MAKING DO WITH THE  
OLD. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 771 284 9/2  
BROWN UNIV PROVIDENCE R I CENTER FOR COMPUTER AND  
INFORMATION SCIENCES

AN INTERACTIVE SOFTWARE ENGINEERING TOOL  
FOR MEMORY MANAGEMENT AND USER PROGRAM  
EVALUATION,

(U)

NOV 73 24P MILLBRANDT,WOLFGANG W. ;  
RODRIGUEZ-ROSELL,JUAN ;  
CONTRACT: N00014-67-A-0191-0023, NSF-GJ-28401

UNCLASSIFIED REPORT

DESCRIPTORS: \*COMPUTER PROGRAMMING, MEMORY DEVICES,  
MONITORING, FORTRAN

(U)

IDENTIFIERS: \*VIRTUAL MEMORY, \*COMPUTER STORAGE  
MANAGEMENT, INTERACTIVE COMPUTER GRAPHICS, IBM  
360/67 COMPUTERS

(U)

AS THE USE OF VIRTUAL MEMORY BECOMES MORE AND MORE  
ACCEPTED, THE PROBLEM OF EFFECTIVE STORAGE MANAGEMENT  
BECOMES MORE AND MORE IMPORTANT. TO DATE MOST  
EFFORTS TO OPTIMIZE THE USE OF MEMORY HAVE BEEN  
DIRECTED AT DEVISING MEMORY MANAGEMENT STRATEGIES AT  
THE OPERATING SYSTEM LEVEL THAT MINIMIZE THE NUMBER  
OF PAGE FAULTS. LITTLE EFFORT HAS BEEN MADE TO  
PROVIDE THE PROGRAMMER WITH SUITABLE TOOLS FOR MAKING  
HIS PROGRAMS 'MORE LOCAL'. TO FILL THIS NEED THE  
BROWN UNIVERSITY DISPLAY FOR WORKING SET  
REFERENCES WAS DEVELOPED, ENABLING THE PROGRAMMER  
TO DIRECTLY MONITOR THE PAGE REFERENCING BEHAVIOR OF  
HIS MODULES. THIS INTERACTIVE GRAPHICS MEASUREMENT  
SYSTEM USES A SATELLITE PROCESSOR TO DISPLAY USER  
PROGRAM MEMORY REFERENCES AND WORKING SET PARAMETERS.  
THE SYSTEM AND SEVERAL PARAMETERS USED TO EVALUATE  
PROGRAM MEMORY UTILIZATION ARE DISCUSSED. PRACTICAL  
PROGRAMMING GUIDELINES AND PACKAGING TECHNIQUES TO  
IMPROVE MEMORY USAGE IN A VIRTUAL MEMORY ENVIRONMENT  
ARE PRESENTED. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 771 428 9/2  
MASSACHUSETTS INST OF TECH CAMBRIDGE PROJECT MAC

PROJECT MAC PROGRESS REPORT X, JULY 1972-  
JUNE 1973,

(u)

DEC 73 154P FREDKIN,E. ;  
CONTRACT: N00014-70-A-0362-0001, N00014-70-A-0362-  
0006

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO REPORT AD-756 689.

DESCRIPTORS: \*COMPUTER PROGRAMMING, \*DATA  
PROCESSING, \*ARTIFICIAL INTELLIGENCE, PROGRAMMING  
LANGUAGES, SYSTEMS ENGINEERING, TIME SHARING,  
MULTIPLE OPERATION, AUTOMATA, REAL TIME,  
INFORMATION SYSTEMS, GRAPHICS

(u)

IDENTIFIERS: MAC PROJECT, MULTICS SYSTEM,  
INTERACTIVE COMPUTER GRAPHICS, \*DATA PROCESSING  
SYSTEMS, COMPUTER NETWORKS, COMPUTER STORAGE  
MANAGEMENT, AUTOMATA THEORY

(u)

;CONTENTS: COMPUTER SYSTEMS RESEARCH;  
PROGRAMMING TECHNOLOGY; AUTOMATIC PROGRAMMING  
DIVISION; OTHER RESEARCH; PROJECT MAC  
PUBLICATIONS.

(u)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 771 545 9/2  
WESTINGHOUSE RESEARCH LABS PITTSBURGH PA

MOBILE CENTRAL SWITCHES (AN ELECTRON-  
LITHOGRAPHY APPLICATION). (U)

DESCRIPTIVE NOTE: FINAL REPT. 9 JUN 69-30 JUN 72.  
SEP 73 300P MALMBERG,PAUL R. ;  
O'KEEFFE,TERRENCE W. ;SOPIRA,MICHAEL M. ;  
SCALA,LUCIANO C. ;  
REPT. NO. 6F6-LSMEM-R1  
CONTRACT: F30602-69-C-0280  
PROJ: AF-4519, AF-6523  
TASK: 451903, 652301  
MONITOR: RADC TR-73-275

UNCLASSIFIED REPORT

DESCRIPTORS: \*MEMORY DEVICES, \*LOGIC CIRCUITS,  
\*FABRICATION, LITHOGRAPHY, ELECTRON BEAMS,  
INTEGRATED CIRCUITS (U)

IDENTIFIERS: \*SEMICONDUCTOR COMPUTER STORAGE,  
ELECTRON BEAM LITHOGRAPHY, \*RANDOM ACCESS COMPUTER  
STORAGE (U)

MAXIMUM DENSITY CIRCUIT FABRICATION TECHNIQUES WERE  
APPLIED TO THE FABRICATION OF A 1024-BIT RANDOM  
ACCESS MEMORY BASED ON A 2-TRANSISTOR VERSATILE  
MEMORY/CROSSPOINT SWITCH CELL OF RADC DESIGN.  
ARRANGED AS A 32 WORD BY 32 BIT MATRIX OF CELLS ON  
20 X 24 MICRON CENTERS, THE MEMORY CHIP DESIGN  
INCLUDES ADDRESS DECODING FOR SELECTIVE ENABLING OF  
THREE CONTROL BUSSES PER WORD TO PERMIT OPERATION OF  
THE DEVICE AS A RANDOM ACCESS MEMORY, ASSOCIATIVE  
MEMORY, CROSSPOINT SWITCH, OR SAMPLE AND HOLD SWITCH.  
A TWO MICRON MINIMUM GEOMETRY DESIGN RULE WAS  
FOLLOWED. FOURTEEN MEMORY CIRCUITS AND 4 TEST  
CIRCUITS WERE COMPLETED AND THE BEST UNITS WERE  
MOUNTED ON CERAMIC CARRIERS WITH 50-PIN EDGE  
CONNECTORS. STATIC AND DYNAMIC TESTS OF THESE  
DEVICES SHOWED OPERATING TRANSISTORS, DECODERS, AND A  
MEMORY WORD USED FOR RESET OF DATA LINES. ELECTRON  
BEAM FABRICATION TECHNIQUES WERE ADVANCED DURING THE  
PROGRAM. (MODIFIED AUTHOR ABSTRACT) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 771 793 9/2  
INFORMATICS INC ROCKVILLE MD

INTELLIGENCE SYSTEM DESIGNER'S MEMORY  
EVALUATION PROGRAM.

(U)

DESCRIPTIVE NOTE: FINAL REPT. JUN 72-AUG 73,  
NOV 73 131P SAVAS,MARY ANN ;CORLEY,  
STEVEN ;  
REPT. NO. TR-73-1561-1  
CONTRACT: F30602-72-C-0380  
MONITOR: RADC TR-73-328

UNCLASSIFIED REPORT

DESCRIPTORS: \*MEMORY DEVICES, \*COST EFFECTIVENESS,  
\*COMPUTERIZED SIMULATION, \*COMPUTER PROGRAMMING,  
INSTRUCTION MANUALS, PERFORMANCE(ENGINEERING),  
FORTRAN (U)  
IDENTIFIERS: PERFORMANCE EVALUATION, HIS 635  
COMPUTERS, GESIM PROGRAMMING LANGUAGE (U)

THE SELECTION OF STORAGE EQUIPMENT IS AN INTEGRAL PART OF INTELLIGENCE SYSTEMS DESIGN. INTELLIGENCE DATA HANDLING SYSTEMS ARE CHARACTERIZED BY LARGE FILES WHOSE ELEMENTS ARE CONSTANTLY ACCESSED, UPDATED, AND/OR DELETED BY A NUMBER OF PROCESSES AND PROCEDURES. TOO OFTEN, THE MINIMUM COST OF A SYSTEM IS NOT ATTAINED DUE TO THE DIFFICULTIES OF COMPARING THE COST AND/OR TECHNICAL PERFORMANCE OF VARIOUS STORAGE DEVICES. THE MEMORY EVALUATION PROGRAM HAS BEEN DESIGNED TO ASSIST IN THE DETERMINATION OF THE BEST OR, IN SOME CASES, A FEASIBLE SOLUTION TO MEET STORAGE REQUIREMENTS. IT IS A SIMULATION PROGRAM BASED UPON MATHEMATICALLY-SOUND PRINCIPLES THAT CLOSELY PARALLEL THE PROCEDURES USED BY LARGE-SCALE COMPUTERS TO PERFORM INPUT/OUTPUT OPERATIONS WITH STORAGE DEVICES. THEREFORE, IT IS POSSIBLE TO STUDY MORE ALTERNATIVE SOLUTIONS AND TO HAVE MORE PERFORMANCE DATA AVAILABLE WITH WHICH TO PERFORM COMPARATIVE ANALYSES. ALGORITHMS FOR EVALUATING MAGNETIC TAPE DEVICES, AND DIRECT ACCESS STORAGE DEVICES, HAVE BEEN INCLUDED IN THE SIMULATION PROGRAMS. (MODIFIED AUTHOR ABSTRACT) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 772 018 9/2  
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

THE POSSIBILITY OF CONSTRUCTION OF AN  
ALGORITHMIC GENERAL-PURPOSE HYBRID  
COMPUTER.

(U)

NOV 73 14P PUKHOV, G. E. ;  
REPT. NO. FTD-HT-23-319-74  
PROJ: FTD-T74-05-12

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. OF AKADEMIYA NAUK  
URSR, KIEV. INSTITUT KIBERNETIKI SEMINAR PO  
METODAM MATEMATICHESKOGO MODELIROVANIYA I TEORII  
ELEKTRICHESKIKH TSEPEI. TRUDY SEMINARA, N9 P3-9  
1971, BY FRANK C. VAUGHN.

DESCRIPTORS: \*HYBRID COMPUTERS, ALGORITHMS, MEMORY  
DEVICES, LOGIC CIRCUITS, PARTIAL DIFFERENTIAL  
EQUATIONS, MATRICES(MATHEMATICS), TRANSLATIONS,  
USSR

(U)

IN THE PRESENT WORK AN ATTEMPT IS MADE TO EXAMINE  
CERTAIN PROBLEMS RELATIVE TO THE ALGORITHMIC GENERAL-  
PURPOSE HYBRID COMPUTER WHICH HAS THE FOLLOWING  
COMPONENTS: A COMMON DIGITAL MEMORY, A COMMON  
CONTROL UNIT AND TWO ARITHMETIC DEVICES, THE FIRST OF  
WHICH IS DIGITAL AND THE SECOND IS A CODE-CONTROLLED  
ALGEBRAIC CONVERTER OF CONTINUOUS ELECTRICAL  
VOLTAGES.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 772 165        8/7        9/2  
SYSTEMS SCIENCE AND SOFTWARE LA JOLLA CALIF

THE FINITE ELEMENT COMPUTER CODE  
3NONLIN'. (U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT.,  
MAY 73 1V BALIGH, MOHSEN M.;  
REPT. NO. SSS-R-73-1658-PC  
CONTRACT: H0220047

UNCLASSIFIED REPORT  
PUNCHED CARDS \$200.00/DECK OF 1597 CARDS.  
SUPPLEMENTARY NOTE: PRICE INCLUDES TECHNICAL REPORT AD-  
764 099. SPONSORED IN PART BY ADVANCED RESEARCH  
PROJECTS AGENCY, ARLINGTON, VA.

DESCRIPTORS: \*ROCK MECHANICS, \*COMPUTER PROGRAMS,  
\*PUNCHED CARDS, COMPRESSIVE PROPERTIES, TEST  
METHODS, COMPUTERIZED SIMULATION, CRACKS, MINING  
ENGINEERING, TRIAXIAL STRESSES, LOAD(FORCES),  
PLASTIC FLOW, NUMERICAL ANALYSIS (U)

IDENTIFIERS: NONLIN COMPUTER CODE, FINITE ELEMENT  
ANALYSIS, COMPRESSION TESTS (U)

THE PROGRAM WAS DEVELOPED UNDER RESEARCH CONTRACT  
H0220047 'A NUMERICAL STUDY OF UNIAXIAL AND  
TRIAXIAL ROCK COMPRESSION TESTS.' THE  
FINAL TECHNICAL REPORT FROM THIS CONTRACT, WHICH  
DESCRIBES THE USE OF THIS PROGRAM, IS CURRENTLY  
AVAILABLE FROM NTIS UNDER AD-764 099 AT A COST OF  
\$3.00 FOR PAPER COPY OR \$1.45 FOR MICROFICHE.  
TO ACCOMPLISH THE STUDY, THE TWO-DIMENSIONAL,  
QUASI-STATIC FINITE ELEMENT CODE NONLIN WAS  
DEVELOPED TO SOLVE PROBLEMS INVOLVING NONLINEAR,  
NONHOMOGENEOUS, AND ANISOTROPIC MATERIALS.  
NONLINEARITIES ARE STUDIED BY MEANS OF THE  
INCREMENTAL OR THE ITERATION TECHNIQUES, OR A  
COMBINATION OF THE TWO. TO ACHIEVE FAST  
CONVERGENCE USING THE STIFFNESS PERTURBATION  
TECHNIQUE, NEW ITERATION SCHEME WERE DEVELOPED WHICH  
MADE THE SOLUTION OF A WIDER CLASS OF PROBLEMS  
POSSIBLE. DISCONTINUITIES IN DISPLACEMENTS THAT  
ARISE AT INTERFACES OR AT JOINTS AND CRACKS IN ROCKS  
WERE POSSIBLE TO ANALYZE AFTER A SPECIAL ELEMENT, WAS  
DEVELOPED AND INCORPORATED IN THE CODE. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 772 410 9/2  
DEFENSE INTELLIGENCE AGENCY WASHINGTON D C

MACHINE INDEPENDENT DATA MANAGEMENT SYSTEM  
(MIDMS) SYSTEM TAPE.

(U)

AUG 73 IV  
REPT. NO. DIA-U-065

UNCLASSIFIED REPORT

AVAILABILITY: FOREIGN SALES SUBJECT TO NEGOTIATION.  
SPECIFY TAPE RECORDING MODE DESIRED: 7 TRACK, 556 AND  
800 BPI, ODD AND EVEN PARITY; OR 9 TRACK, 800 BPI, ODD  
PARITY.

DESCRIPTORS: \*COMPUTER PROGRAMMING, \*DATA  
MANAGEMENT, \*MAGNETIC TAPE, INFORMATION RETRIEVAL,  
MEMORY DEVICES

(U)

IDENTIFIERS: \*MIDMS(MACHINE INDEPENDENT DATA  
MANAGEMENT SYSTEM), MACHINE INDEPENDENT DATA  
MANAGEMENT SYSTEM, \*DATA MANAGEMENT SYSTEMS

(U)

THIS 9-TRACK, 800 BPI, NON-LABELED TAPE CONTAINS  
ALL THE SOURCE, OBJECT PROGRAMS AND PROCEDURES OF THE  
MACHINE INDEPENDENT DATA MANAGEMENT SYSTEM  
(MIDMS) ALONG WITH THE SYSTEM'S LOAD MODULES,  
EXECUTABLE ON AN IBM 360/40G OR LARGER MACHINE,  
UNDER A PCP, MVT OR MFT-II OPERATING SYSTEM  
CONFIGURATION. IT REQUIRES A MINIMUM OF 128K  
BYTES OF CORE WITH PCP, AND 256K BYTES WITH MVT  
OR MFT-II OPERATING SYSTEMS, AND CAN USE ANY  
INPUT/OUTPUT DEVICE SUPPORTED BY THE OPERATING  
SYSTEM. (MODIFIED AUTHOR ABSTRACT)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 772 415 9/2

CALIFORNIA UNIV LOS ANGELES CALIF DEPT OF COMPUTER  
SCIENCE

MEMORY-USE ESTIMATOR FUNCTION OF A PROGRAM  
EXECUTING IN PAGING ENVIRONMENT,

(U)

73 1OP RAO,JAI R. ;  
CONTRACT: AF-AFOSR-2384-72  
PROJ: AF-9769  
TASK: 976902  
MONITOR: AFOSR TR-74-0010

UNCLASSIFIED REPORT

AVAILABILITY: PUB. IN THE PROCEEDINGS ON TEXAS  
CONFERENCE ON COMPUTING SYSTEMS (2ND), P15-1--15-  
7, 12-13 NOV 73.

SUPPLEMENTARY NOTE: PREPARED IN COOPERATION WITH THE  
HOLMES AND NARVER, INC., ANAHEIM, CALIF.

DESCRIPTORS: \*COMPUTER PROGRAMMING, \*MEMORY DEVICES,  
ALLOCATIONS, ESTIMATES

(U)

IDENTIFIERS: PAGING, PAGED ENVIRONMENTS

(U)

ATTEMPTS HAVE BEEN MADE THROUGH SIMULATION TO STUDY  
PROGRAM EXECUTION IN A PAGING ENVIRONMENT. HEREIN,  
THE AUTHOR DEVELOPS AN ANALYTIC MODEL, MEMORY-USE  
ESTIMATOR FUNCTIONS  $S(X,V)$ , WHICH IS A FUNCTION  
OF INSTRUCTIONS EXECUTED X AND PAGE SIZE V IN  
WORDS;  $S(X,V)$  ADEQUATELY DESCRIBES PAGE DEMAND OF  
A PROGRAM IN EXECUTION. PROPERTIES OF THIS  
FUNCTION ARE DISCUSSED AND COMPARED WITH SOME  
PREVIOUS STUDIES. THE MEMORY-USE ESTIMATOR  
FUNCTION CAN BE USED TO DETERMINE THE NUMBER OF PAGES  
A PROGRAM WOULD USE DURING A GIVEN EXECUTION TIME  
SLICE. (MODIFIED AUTHOR ABSTRACT)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 772 485 9/2  
NAVAL ORDNANCE LAB WHITE OAK MD

PROGRESS TOWARD THE CROSSTIE MEMORY,

(U)

OCT 73 60P SCHWEE, LEONARD J.; IRONS,  
HENRY R.; KRALL, ALBERT D.; ANDERSON, WALLACE  
E.; WATSON, J.; KENNETH ;  
REPT. NO. NOLTR-73-185  
PROJ: MAT-03L-000/ZF61-512, NOL-824/RR011-02  
TASK: MAT-03L-000/ZF61-512-001, NOL-824/RR011-02-  
02

UNCLASSIFIED REPORT

DESCRIPTORS: \*THIN FILM STORAGE DEVICES, \*SHIFT  
REGISTERS, \*RANDOM ACCESS COMPUTER STORAGE, MAGNETIC  
DOMAINS, DOMAIN WALLS, THIN FILMS, MAGNETIC  
MATERIALS, MAGNETIC RESONANCE, ELECTRIC CURRENTS,  
PERFORMANCE(ENGINEERING)

(U)

IDENTIFIERS: BORAM(BLOCK ORIENTED RANDOM  
ACCESS MEMORIES), BLOCK ORIENTED RANDOM ACCESS  
MEMORIES, \*MAGNETIC FILM MEMORIES, MAGNETIC BUBBLE  
DOMAINS, MAGNETORESISTIVITY

(U)

PROGRESS TOWARD A MAGNETIC SERIAL ACCESS MEMORY  
WHICH STORES INFORMATION IN DOMAIN WALLS OF A  
MAGNETIC THIN FILM IS REPORTED. CALLED THE  
CROSSTIE MEMORY, IT REPRESENTS A RADICAL DEPARTURE  
FROM PREVIOUS TECHNIQUES IN WHICH THE INFORMATION IS  
STORED IN DOMAINS RATHER THAN WALLS. THE CROSSTIE  
MEMORY IS INTENDED FOR USE AS A BLOCK ORIENTED RANDOM  
ACCESS MEMORY (BORAM) OR FAST AUXILIARY MEMORY  
(FAM). THE ADVANTAGES OF THE CROSSTIE APPROACH  
ARE SPEED, LOW POWER, HIGH BIT DENSITY,  
NONVOLATILITY, A WIDE TEMPERATURE OPERATING RANGE,  
LOW COST, AND AVAILABLE TECHNOLOGY. THE REPORT  
SUMMARIZES THE BACKGROUND KNOWLEDGE NECESSARY FOR THE  
DESIGN OF SUCH A MEMORY. THIS INCLUDES EXPERIMENTS  
ON STABILITY CONDITIONS, MOBILITY, DYNAMIC EFFECTS,  
PROPAGATION, AND DETECTION. THE CROSSTIE METHOD  
APPEARS COMPLETELY FEASIBLE AND SEVERAL OPTIONS ARE  
POSSIBLE FOR ITS ULTIMATE EMBODIMENT.

(AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 772 492 9/2  
HARVARD UNIV CAMBRIDGE MASS

RESEARCH ANALYSIS OF OPERATING SYSTEMS. (U)

DESCRIPTIVE NOTE: FINAL REPT. 1 MAY 70-30 JUN 73,  
OCT 73 121P BUZEN, J. P.; GAGLIARDI, U.

O. :

CONTRACT: F19628-70-C-0217

PROJ: AF-2801

TASK: 280102

MONITOR: ESD TR-73-274

UNCLASSIFIED REPORT

DESCRIPTORS: \*COMPUTER PROGRAMMING,  
MULTIPROGRAMMING, MATHEMATICAL MODELS, STOCHASTIC  
PROCESSES, DATA STORAGE SYSTEMS, QUEUEING THEORY,  
ALGORITHMS (U)

IDENTIFIERS: \*OPERATING SYSTEMS(COMPUTERS),  
VIRTUAL MEMORY, COMPUTER STORAGE MANAGEMENT,  
HIST COMPUTER PROGRAM, PDP-10 COMPUTERS,  
PERFORMANCE EVALUATION, COMPUTER PRIVACY (U)

SUMMARY REPORTS OF OPERATING SYSTEMS RESEARCH  
PERFORMED BY CONTRACT PERSONNEL ARE PRESENTED.  
RESEARCH OVERVIEWS, BRIEF SUMMARIES OF EXISTING  
PAPERS, AND REPRINTS OF SEVERAL PREVIOUSLY PUBLISHED  
ARTICLES ARE INCLUDED. THE RESEARCH IS DIVIDED  
ROUGHLY INTO FOUR AREAS: SYSTEM PERFORMANCE  
MODELS, PROGRAM ADDRESSING BEHAVIOR, VIRTUAL  
MACHINES, AND DATA BASE PRIVACY AND SECURITY.  
(MODIFIED AUTHOR ABSTRACT) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 772 601 9/2  
FEDERAL COBOL COMPILER TESTING SERVICE WASHINGTON D C

COBOL COMPILER VALIDATION SYSTEM, MAGNETIC  
TAPE VERSION 6.0.

(U)

OCT 73 1V  
REPT. NO. FCCTS-01

UNCLASSIFIED REPORT

AVAILABILITY: FOREIGN SALES SUBJECT TO NEGOTIATION.  
SPECIFY TAKE RECORDING MODE DESIRED: 7 TRACK, 556 AND  
800 BPI, ODD AND EVEN PARITY; OR 9 TRACK, 800 BPI, ODD  
PARITY.

SUPPLEMENTARY NOTE: PRICE INCLUDES USERS GUIDE, AD-  
772 600.

DESCRIPTORS: \*PROGRAMMING LANGUAGES, \*COMPILERS,  
\*VALIDATION, \*MAGNETIC TAPE

(U)

IDENTIFIERS: \*COBOL

(U)

THE COBOL VALIDATION SYSTEM IS USED TO  
VALIDATE COBOL COMPILERS AND TO ENSURE THEIR  
CONFORMANCE TO THE FEDERAL STANDARD AS PRESCRIBED  
IN FIPS-PUB-21. THE SYSTEM CONSISTS OF A  
COMPREHENSIVE SET OF AUDIT ROUTINES, THEIR RELATED  
DATA, AND AN EXECUTIVE ROUTINE WHICH PREPARES THE  
AUDIT ROUTINES FOR COMPILEATION IN A PARTICULAR  
HARDWARE/OPERATING SYSTEM ENVIRONMENT. EACH AUDIT  
ROUTINE IS A COBOL PROGRAM WHICH INCLUDES SEVERAL  
TESTS AND SUPPORTING PROCEDURES INDICATING THE RESULT  
OF THE TESTS. THE PAPER CONTAINS THE MAGNETIC TAPE  
FOR THE COBOL VALIDATION SYSTEM.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 772 630 9/2  
BROWN UNIV PROVIDENCE R I DIV OF APPLIED MATHEMATICS

THE OPTIMAL CHOICE OF WINDOW SIZES FOR  
WORKING SET DISPATCHING,

(U)

MAY 73 34P HENDERSON,GREG RODRIGUEZ-  
ROSELL,JUAN ;  
CONTRACT: N00014-67-A-0191-0026

UNCLASSIFIED REPORT

DESCRIPTORS: \*CONTROL SEQUENCES, \*COMPILERS, DATA  
PROCESSING, MEMORY DEVICES, COMPUTATIONS, TIME  
SHARING

(U)

IDENTIFIERS: FAULT TOLERANT COMPUTING

(U)

THE CONCEPT OF VARYING WINDOW SIZE IN A WORKING SET  
DISPATCHER TO CONTROL WORKING SET SIZE AND NUMBER OF  
PAGE FAULTS IS EXAMINED. A SPACE-TIME COST EQUATION  
IS DEVELOPED AND USED TO COMPARE DIFFERENT  
DISPATCHING ALGORITHMS AND DIFFERENT TYPES OF  
SECONDARY STORAGE BASED ON THE SIMULATED EXECUTION OF  
REAL PROGRAMS. A GENERAL APPROACH IS INDICATED FOR  
STUDYING THE RELATIVE MERIT OF DIFFERENT DISPATCHING  
ALGORITHMS AND THEIR INTERACTION WITH DIFFERENT  
HARDWARE CONFIGURATIONS. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 772 808 9/2  
MITRE CORP BEDFORD MASS

DESIGN OF A SECURITY KERNEL FOR THE PDP-11/  
45.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,  
DEC 73 79P SCHILLER,W. L. ;  
REPT. NO. MTR-2709  
CONTRACT: F19628-73-C-0001  
PROJ: AF-5228  
MONITOR: ESD TR-73-294

UNCLASSIFIED REPORT

DESCRIPTORS: \*CENTRAL PROCESSING UNITS, \*SECURITY,  
\*COMPUTER PROGRAMMING, MEMORY DEVICES, INPUT  
OUTPUT DEVICES

(U)

IDENTIFIERS: PDP-11/45 COMPUTERS, COMPUTER  
SECURITY, DESIGN

(U)

THE PAPER PRESENTS THE DESIGN OF A KERNEL FOR  
SECURE COMPUTER SYSTEMS TO BE BUILT ON THE DIGITAL  
EQUIPMENT CORPORATION PDP-11/45. THE DESIGN  
APPLIES A GENERAL PURPOSE MATHEMATICAL MODEL OF  
SECURE COMPUTER SYSTEMS TO AN OFF-THE-SHELF COMPUTER.  
THE KERNEL DESIGN IS INTENDED TO SUPPORT SYSTEMS OF  
LIMITED GENERALITY, RATHER THAN A GENERAL PURPOSE  
SYSTEM. THE INITIAL SYSTEMS TO BE BUILT ON THE 11/  
45 WILL BE A FRONT-END (COMMUNICATIONS) PROCESSOR  
FOR A SECURE CENTRAL COMPUTER AND A QUERY SYSTEM FOR  
A SECURE MULTILEVEL DATA BASE. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 773 233 5/9 9/2  
ASSISTANT SECRETARY OF DEFENSE (MANPOWER AND RESERVE  
AFFAIRS) WASHINGTON D C

COMPREHENSIVE OCCUPATIONAL DATA ANALYSIS  
PROGRAM (CODAP). (U)

74 1V CANTER,RALPH ;MILLER,J. P.  
;  
REPT. NO. OSAD/MRA-CODAP-73

UNCLASSIFIED REPORT  
AVAILABILITY: AVAILABLE FROM NTIS \$200.00.  
SPECIFY TAPE RECORDING MODE DESIRED: 9 TRACK, 800  
BPI, ODD PARITY ONLY. COMPUTER PRODUCTS CATALOG DATA  
SHEET, ANALYSTS GUIDE, USERS GUIDE, SYSTEMS MAINTENANCE  
GUIDE, EXECUTIVES OVERVIEW GUIDE, AND CODAP CARD DECK  
INCLUDED. NO COPIES FROM DDC.

DESCRIPTORS: \*MAGNETIC TAPE, \*JOB ANALYSIS, DATA  
PROCESSING, INPUT, STATISTICAL ANALYSIS (U)  
IDENTIFIERS: CODAP COMPUTER PROGRAM (U)

CODAP IS A SERIES OF COMPUTER PROGRAMS FOR  
OCCUPATIONAL ANALYSIS WHICH: PERMIT THE  
TRANSFORMATION OF JOB DATA INTO MACHINE INPUT FORM;  
ALLOW CERTAIN MATHEMATICAL AND SUMMARY PROCESSES TO  
OCUR; AND PRESENT REPORTS RELATIVE TO JOB  
ORGANIZATION AND STATISTICAL INFORMATION RELATED TO  
DEFINED JOB AREAS. THE EXPORT VERSION OF CODAP  
IS CONTAINED ON ONE REEL OF MAGNETIC TAPE. IT  
PRODUCES A SINGLE SHEET OF INSTALLATION INSTRUCTIONS  
AND A PUNCHED DECK CONTAINING THESE INSTRUCTIONS.  
THE TAPE CONTAINS DETAILED INSTRUCTIONS AND USER  
JOB STREAM FOR INSTALLATION, PLUS CERTAIN MODULES,  
CODAP EXECUTION PROCEDURES, AND SELECTED UTILITY  
PROCEDURES. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD= 773 963 9/2  
EVANS AND SUTHERLAND COMPUTER CORP SALT LAKE CITY UTAH

A CHARACTERIZATION OF TEN HIDDEN-SURFACE  
ALGORITHMS.

(U)

DESCRIPTIVE NOTE: REPT. FOR APR 72-MAR 73,  
DEC 73 118P SUTHERLAND, IVAN E.; SPROULL,  
ROBERT F.; SCHUMACKER, ROBERT A.  
CONTRACT: N00014-72-C-0346  
PROJ: NR-049-333

UNCLASSIFIED REPORT

DESCRIPTORS: COMPUTER GRAPHICS, MEMORY DEVICES,  
COMPUTATIONS, SORTING, COMPUTER PROGRAMMING,  
ALGORITHMS

(U)

IDENTIFIERS: IMAGE PROCESSING, CONVEX  
POLYGONS

(U)

THE PAPER ASSERTS THAT THE HIDDEN-SURFACE PROBLEM  
IS MAINLY ONE OF SORTING. THE VARIOUS SURFACES OF  
AN OBJECT TO BE SHOWN IN HIDDEN-SURFACE OR HIDDEN-  
LINE FORM MUST BE SORTED TO FIND OUT WHICH ONES ARE  
VISIBLE AT VARIOUS PLACES ON THE SCREEN. SURFACES  
MAY BE SORTED BY LATERAL POSITION IN THE PICTURE  
(XY), BY DEPTH (Z), OR BY OTHER CRITERIA. THE  
PAPER SHOWS THAT THE ORDER OF SORTING AND THE TYPES  
OF SORTING USED FORM DIFFERENCES AMONG THE EXISTING  
HIDDEN-SURFACE ALGORITHMS. (MODIFIED AUTHOR  
ABSTRACT)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 776 028 9/2  
RAND CORP SANTA MONICA CALIF

A COMPUTER CENTRALIZATION COST MODEL FOR  
CONCEPTUAL DESIGN.

(U)

SEP 73 59P SEALS,EUGENE ;DREZNER,  
STEPHEN M. ;  
REPT. NO. R-1268-PR  
CONTRACT: F44620-73-C-0011

UNCLASSIFIED REPORT

DESCRIPTORS: \*CENTRAL PROCESSING UNITS, \*JOB  
ANALYSIS, \*COST ANALYSIS, SYSTEMS ANALYSIS, AIR  
FORCE, COMMUNICATION EQUIPMENT, INPUT OUTPUT  
DEVICES, MEMORY DEVICES, COMPUTER PROGRAMMING,  
MAINTENANCE, MANPOWER

(U)

THE REPORT DESCRIBES A COMPUTER MODEL DEVELOPED TO  
HELP INVESTIGATE THE COSTS OF CENTRALIZING U.S.  
AIR FORCE BASE-MODEL COMPUTATION WORKLOAD. THE  
MODEL PERMITS THE ANALYST TO ESTIMATE THE COST OF  
CONSOLIDATING MULTIPLE EXISTING OR PROPOSED  
FACILITIES INTO FEWER FACILITIES. THE REPORT  
DESCRIBES THE MODEL, THE ASSUMPTIONS IMPLICIT IN ITS  
WORLD VIEW, AND THE INPUTS REQUIRED BY THE ANALYST.  
THE LIMITATIONS OF THE MODEL AND POSSIBLE FUTURE  
MODIFICATIONS ARE ALSO DISCUSSED.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 777 100 9/2 5/1  
ARMY AUDIT AGENCY WASHINGTON D C

AUDIT: ARMY UNIFORM DATA INQUIRY TECHNIQUE  
- COMPUTER PROGRAMS.

(U)

MAR 74 IV ROLIG, THEODORE C. :

UNCLASSIFIED REPORT

AVAILABILITY: SPECIFY TAPE RECORDING MODE DESIRED:  
7 TRACK, 556 AND 800 BPI, ODD AND EVEN PARITY; OR 9  
TRACK, 800 BPI, ODD PARITY. ALSO AVAILABLE IN PUNCHED  
CARDS.

SUPPLEMENTARY NOTE: FOR USER'S MANUAL, SEE AD-777  
101. FOR TECHNICAL MANUAL, SEE AD-777 102.

DESCRIPTORS: \*COMPUTER PROGRAMS, \*MAGNETIC TAPE,  
\*MANAGEMENT INFORMATION SYSTEMS, \*AUDITING, ARMY  
OPERATIONS, COMPILERS, BOOLEAN ALGEBRA

(U)

IDENTIFIERS: \*AUDIT SYSTEM, COBOL

(U)

AUDIT IS A MANAGEMENT RETRIEVAL AND ANALYZER SYSTEM  
WHICH FEATURES AN EASY-TO-USE HUMAN-ENGINEERED  
SPECIFICATION LANGUAGE AND COBOL IMPLEMENTING  
SOFTWARE. THE REPORT CONTAINS THE MAGNETIC TAPE  
FOR THE SYSTEMS.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 778 765 9/2 9/5  
NORTH CAROLINA STATE UNIV RALEIGH DEPT OF ELECTRICAL  
ENGINEERING

RESEARCH PROPOSAL FOR MINIMAL COST  
SEQUENTIAL MACHINES.

(U)

JAN 74 69P STAUDHAMMER, JOHN I  
REPT. NO. REPT. NO. 1  
CONTRACT: DA-ARO-D-31-124-72-G65

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: REPRINTED WITH CORRECTIONS REPORT  
DATED JAN 73.

DESCRIPTORS: \*GATES(CIRCUITS), \*LOGIC CIRCUITS,  
MEMORY DEVICES, COMPUTATIONS, ALGORITHMS,  
COSTS

(U)

IDENTIFIERS: \*ASYNCHRONOUS SEQUENTIAL CIRCUITS,  
FLIP FLOPS, \*SEQUENTIAL MACHINES, LOGIC DESIGN

(U)

THE STATE ASSIGNMENT PROBLEM FOR MINIMAL LOGIC  
REQUIRED FOR A GENERAL SYNCHRONOUS MACHINE IS  
CONCEDED TO BE A COMPUTATIONALLY INTRACTABLE PROBLEM.  
HOWEVER RESEARCH CONDUCTED HERE OVER THE LAST 18  
MONTHS INDICATES THAT A REALISTIC LOWER LIMIT MAY BE  
FOUND ON THE LOGIC REQUIRED AND THAT THE PROCEDURES  
USED TO CALCULATE THIS LIMIT MAY BE TAKEN AS A BASIS  
FOR GUIDING THE STATE ASSIGNMENT SUCH THAT A CIRCUIT  
APPROACHING THIS LIMIT MAY BE OBTAINED.  
FURTHERMORE, THE PROCEDURE MAY BE USED TO DECIDE ON  
THE KIND OF MEMORY ELEMENT TO BE USED. IT IS  
PROPOSED TO EXTEND THESE PRELIMINARY RESULTS TO  
ASYNCHRONOUS MACHINES, TO INCOMPLETELY SPECIFIED  
MACHINENES, AND TO INCLUDE OUTPUT CONSIDERATIONS.  
FURTHER IT IS PROPOSED TO CONSOLIDATE THESE  
FINDINGS IN A SET OF ALGORITHMS WHICH GIVE AN  
ACCEPTABLY GOOD STATE ASSIGNMENT FOR ARBITRARY,  
NONTRIVIAL MACHINES. (MODIFIED AUTHOR ABSTRACT)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 779 158

9/2

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

APPLICATION OF A HIGH-SPEED ASSOCIATIVE  
MEMORY UNIT IN THE STORAGE SYSTEM OF THE  
'URAL-11' DIGITAL COMPUTER,

(U)

APR 74 12P MORONOV,A. M. ;MINEEV,G.  
YU. IKOZINETS,YU. I. ;  
REPT. NO. FTD-HT-23-562-74  
PROJ: FTD-T74-05-12

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. OF NAUCHNO-  
ISSLEDOVATELSKII INSTITUT UPRAVLYAYUSHCHIKH MASHIN I  
SISTEM, INFORMATSIONNO-POISKOVYE SISTEMY. TRUDY  
(USSR) N4 P49-54 1970, BY RENE E. COURVILLE.

DESCRIPTORS: \*DIGITAL COMPUTERS, \*MEMORY DEVICES,  
TRANSLATIONS, USSR

(U)

IDENTIFIERS: URAL-11 COMPUTERS, \*ASSOCIATIVE  
STORAGE

(U)

APPLICATION OF A HIGH-SPEED ASSOCIATIVE MEMORY  
UNIT IN THE STORAGE SYSTEM OF THE 'URAL-11'  
DIGITAL COMPUTER--TRANSLATION.

87  
UNCLASSIFIED

/ZOM07

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 779 452 9/2

HAWAII UNIV HONOLULU DEPT OF INFORMATION AND COMPUTER  
SCIENCE

AN INVESTIGATION OF COMPUTER SYSTEMS  
PROBLEMS.

(u)

DESCRIPTIVE NOTE: FINAL REPT.,  
MAR 74 19P PETERSON,W. W. & LEW,A. ;  
CONTRACT: DA-ARO-D-31-124-71-G43  
PROJ: AROD-P-8803-RT  
MONITOR: AROD 8803-17-RT

UNCLASSIFIED REPORT

DESCRIPTORS: \*COMPUTER PROGRAMMING, \*COMPILERS,  
\*MEMORY DEVICES, SCHEDULING, SEMANTICS

(u)

IDENTIFIERS: PAGING, PARSING, COMPUTER STORAGE  
MANAGEMENT, DEBUGGING(COMPUTERS)

(u)

THE MAIN PROBLEM AREAS SUMMARIZED HERE ARE  
MULTIPROGRAMMING AND PAGING SYSTEMS, DIAGNOSTIC  
COMPILERS AND DEBUGGING, AND GOTO-LESS PROGRAMMING.  
IN THE AREA OF MULTIPROGRAMMING AND PAGING, THE  
AUTHORS HAVE STUDIED THE PROBLEMS OF OPTIMAL  
PAGINATION, REPLACEMENT, ALLOTMENT, AND SCHEDULING.  
IN THE AREA OF DIAGNOSTIC COMPILERS AND DEBUGGING,  
METHODS FOR INCREASING USE OF CONTEXTUAL INFORMATION  
IN BOTH PARSING AND RUN-TIME ENVIRONMENTS ARE  
STUDIED. POSSIBLE USES OF INEFFICIENCIES AS CLUES  
AND LANGUAGE DESIGN CONSIDERATIONS WERE ALSO  
INVESTIGATED. IN THE AREA OF GOTO-LESS  
PROGRAMMING, ALTERNATIVES TO GOTO STATEMENTS, THEIR  
CAPABILITIES AND THE CONSTRUCTION OF WELL-FORMED  
PROGRAMS ARE STUDIED.

(u)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 779 884

9/2

CALIFORNIA UNIV LOS ANGELES SCHOOL OF ENGINEERING AND  
APPLIED SCIENCE

MEASUREMENT AND MODELING OF PROGRAM BEHAVIOR  
AND ITS APPLICATIONS,

(U)

APR 74 286P OPDERBECK, HOLGER ;  
REPT. NO. UCLA-ENG-7418  
CONTRACT: N00014-69-A-0200-4027  
PROJ: NR-048-129

UNCLASSIFIED REPORT

DESCRIPTORS: \*MEMORY DEVICES, \*ALLOCATIONS,  
\*COMPUTER PROGRAMMING, COMPILERS, REPLACEMENT,  
FAULTS, STOCHASTIC PROCESSES, ALGORITHMS, THESES

(U)

IDENTIFIERS: \*PAGING, VIRTUAL MEMORY, PAGE FAULT  
FREQUENCY, MARKOV PROCESSES, MULTIPROGRAMMING

(U)

THE EMPHASIS OF THE RESEARCH IS ON THE MEASUREMENT  
AND MODELING OF PROGRAM BEHAVIOR IN A PAGED MEMORY  
SYSTEM. MEASUREMENT RESULTS ARE USED AS A  
FOUNDATION FOR THE STUDY OF PROGRAM BEHAVIOR.  
BASED ON THESE RESULTS, MODELS OF PROGRAM BEHAVIOR  
ARE DEVELOPED. THESE MODELS ARE THEN USED TO STUDY  
THE PERFORMANCE OF REPLACEMENT ALGORITHMS. A NEW  
TYPE OF REPLACEMENT ALGORITHM BASED ON THE MEASURED  
PAGE FAULT FREQUENCY (PFF) IS DEFINED AND  
INVESTIGATED. NEXT, TWO NEW PROGRAM MODELS, THE  
GENERALIZED LRU STACK MODEL (GLRUM) AND THE  
RENEWAL MODEL, ARE INTRODUCED. FINALLY, THE GLRUM  
IS USED FOR THE PERFORMANCE EVALUATION OF  
MULTIPROGRAMMING SYSTEMS. SEVERAL ACTIVATION AND  
DEACTIVATION POLICIES ARE DEFINED FOR THE PFF  
ALGORITHM AND INVESTIGATED VIA A SIMULATION STUDY.  
IT IS SHOWN THAT THE PFF REPLACEMENT ALGORITHM  
GIVES - OVER A WIDE RANGE OF MEMORY SIZES - A BETTER  
PERFORMANCE THAN THE LRU REPLACEMENT ALGORITHM FOR  
ANY DEGREE OF MULTIPROGRAMMING. (MODIFIED AUTHOR  
ABSTRACT)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 780 129 9/2 17/2  
MASSACHUSETTS INST OF TECH CAMBRIDGE

MULTICOMMODITY THROUGHPUT IN DIGITAL DATA  
NETWORKS WITH FINITE STORAGE,

(U)

NOV 72 8P FIELDS, JOHN S. ;  
CONTRACT: DAAB07-71-C-0300

UNCLASSIFIED REPORT

AVAILABILITY: PUB. IN IEEE TRANSACTIONS ON  
COMMUNICATIONS, P836-842 JUL 73.

SUPPLEMENTARY NOTE: REVISION OF REPORT DATED 5 JUN  
72.

DESCRIPTORS: \*DATA PROCESSING, \*MEMORY DEVICES,  
\*NETWORK FLOWS, SWITCHING CIRCUITS, QUEUEING  
THEORY, SHIFT REGISTERS, THEOREMS

(U)

IDENTIFIERS: \*COMPUTER NETWORKS

(U)

A MODEL OF A DIGITAL DATA MESSAGE SWITCHING NETWORK  
IS DESCRIBED. THE NETWORK PERMITS ONLY FINITE  
STORAGE AT NODES. DISCUSSED IS A ROUTING STRATEGY  
AND STORAGE ALLOCATION TO MAXIMIZE THROUGHPUT BETWEEN  
MANY SOURCE-RECEIVER PAIRS SIMULTANEOUSLY.

(AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 780 312 9/2  
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

ON THE APPLICATION OF MATRIX PRINCIPLES  
WHEN DESIGNING DIGITAL COMPUTERS (TSVM)  
UTILIZING MULTIVALEUE ELEMENTS.

(U)

MAY 74 1OP IVASKIV,YU. L. BYCHENOK,  
N. N. ;  
REPT. NO. FTD-HT-23-1022-74  
PROJ: FTD-T74-05-12

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. OF MONO.  
MNOGOUSTOICHIVYE ELEMENTY I IKH PRIMENENIE. SBORNIK  
STATEI, N.P., 1971 P284-289, BY CATHERINE M.  
BARBER.

DESCRIPTORS: \*DIGITAL COMPUTERS, \*MEMORY DEVICES,  
MATRICES(MATHEMATICS), TRANSLATIONS, USSR  
IDENTIFIERS: ARITHMETIC AND LOGIC UNITS,  
DESIGN

(U)

(U)

ON THE APPLICATION OF MATRIX PRINCIPLES WHEN  
DESIGNING DIGITAL COMPUTERS (TSVM) UTILIZING  
MULTIVALEUE ELEMENTS--TRANSLATION.

AD-A031 200 DEFENSE DOCUMENTATION CENTER ALEXANDRIA VA  
COMPUTERS IN INFORMATION SCIENCES: COMPUTER COMPONENTS.(U)  
OCT 76

F/G 9/2

UNCLASSIFIED

DDC/BIB-76/09

NL

2 of 4  
AD  
A031 200



UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 780 357 13/2 8/9 9/2  
GENERAL RESEARCH CORP ARLINGTON VA

COMPUTER SIMULATION OF HARD ROCK TUNNELING  
PROGRAM: PROGRAM TAPE. (U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT. OCT 70-APR 72,  
MAY 73 1V HIBBARD, R. R. PIETRZAK, L.

M. ;  
REPT. NO. GRC-CR-2-190-TAPE  
CONTRACT: HD110238

UNCLASSIFIED REPORT

AVAILABILITY: SPECIFY TAPE RECORDING MODE DESIRED:  
7 TRACK, 556 AND 800 BPI, ODD AND EVEN PARITY, BCD; OR  
9 TRACK, 800 BPI, ODD PARITY, EBCDIC. AVAILABLE TO  
NON-U.S. ADDRESSES \$375.00. PRICE INCLUDES  
DOCUMENTATION - AD-763 563 THRU AD-763 565 AND AD-763  
567.

DESCRIPTORS: \*CONSTRUCTION, \*UNDERGROUND STRUCTURES,  
\*COMPUTERIZED SIMULATION, \*MAGNETIC TAPE,  
TUNNELING, GEOLOGICAL SURVEY, ROCK MECHANICS,  
FRAGMENTATION, EARTH HANDLING EQUIPMENT, COSTS,  
FORTRAN (U)

IDENTIFIERS: FORTRAN 4 PROGRAMMING LANGUAGE, \*HARD  
ROCK TUNNELING, MATERIAL CONTROL, BENEFIT COST  
ANALYSIS (U)

THIS IS THE MAGNETIC TAPE CONTAINING COMPUTER  
PROGRAMS LISTED IN VOLUME 2 OF THE FINAL TECHNICAL  
REPORT GENERATED UNDER CONTRACT HD110238. A  
COMPUTER MODEL OF THE OVERALL HARD ROCK TUNNELING  
PROCESS WHICH CONSIDERS BOTH PERFORMANCE AND COSTS OF  
THE OPERATION WAS DEVELOPED. SEGMENTS OF THE  
TUNNELING PROCESS MODELED INCLUDE GEOLOGY,  
FRAGMENTATION METHODS, MUCK REMOVAL, GROUND SUPPORT,  
AND ENVIRONMENTAL CONSIDERATIONS. A THREE-  
DIMENSIONAL STRATIFIED GEOLOGY MODEL, FUNCTIONS AS A  
DATA FILE TO REPRESENT GEOLOGICAL CONDITIONS IN THE  
AREA SURROUNDING THE TUNNEL. THE USER HAS A CHOICE  
OF SIMULATING ROCK FRAGMENTATION BY DRILL AND BLAST,  
BORING MACHINE, HIGH VELOCITY WATER JET, AND  
PROJECTILE IMPACT. HE MAY ALSO SIMULATE EITHER  
RAIL, TRUCK, OR CONVEYOR BELT HAULAGE SYSTEMS.  
STEEL SETS, SHOTCRETE, AND ROCK BOLTS ARE OFFERED  
AS A CHOICE OF GROUND SUPPORT METHODS.  
ENVIRONMENTAL FACTORS CONSIDERED INCLUDE WATER  
REMOVAL, VENTILATION, AND COOLING. A COST  
ACCOUNTING SYSTEM IS INCORPORATED TO PROVIDE COST-  
BENEFIT ANALYSIS OF TUNNELING SYSTEM PERFORMANCE.

(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 780 4U7 9/2  
MASSACHUSETTS INST OF TECH CAMBRIDGE PROJECT MAC

AN EXPERIMENTAL ANALYSIS OF PROGRAM  
REFERENCE PATTERNS IN THE MULTICS VIRTUAL  
MEMORY.

(U)

DESCRIPTIVE NOTE: INTERIM SCIENTIFIC REPT.,  
MAY 74 142P GREENBERG, BERNARD S. ;  
REPT. NO. MAC-TR-127  
CONTRACT: N00014-70-A-0362-0006

UNCLASSIFIED REPORT

DESCRIPTORS: \*MEMORY DEVICES, RATES, COMPUTER  
PROGRAMMING, REAL TIME, FAULTS, QUEUEING THEORY,  
SCHEDULING, ALGORITHMS, THESES

(U)

IDENTIFIERS: \*PAGING, VIRTUAL MEMORY, MULTICS  
SYSTEM, COMPUTER STORAGE MANAGEMENT, MAC  
PROJECT

(U)

THE REPORT DISCUSSES THE DESIGN, CONDUCTING, AND  
RESULTS OF AN EXPERIMENT INTENDED TO MEASURE THE  
PAGING RATE OF A VIRTUAL MEMORY COMPUTER SYSTEM AS A  
FUNCTION OF PAGING MEMORY SIZE. THIS EXPERIMENT,  
CONDUCTED ON THE MULTICS COMPUTER SYSTEM AT  
M.I.T., A LARGE INTERACTIVE COMPUTER UTILITY  
SERVING AN ACADEMIC COMMUNITY, SOUGHT TO PREDICT  
PAGING RATES FOR PAGING MEMORY SIZES LARGER THAN THE  
EXISTENT MEMORY AT THE TIME. A TRACE OF ALL  
SECONDARY MEMORY REFERENCES FOR TWO DAYS WAS  
ACCUMULATED, AND SIMULATION TECHNIQUES APPLICABLE TO  
\*STACK\* TYPE PAGING ALGORITHMS (OF WHICH THE LEAST-  
RECENTLY-USED DISCIPLINE USED BY MULTICS IS ONE)  
WERE APPLIED TO IT. A TECHNIQUE FOR INTERFACING  
SUCH AN EXPERIMENT TO AN OPERATIVE COMPUTER UTILITY  
IN SUCH A WAY THAT ADEQUATE DATA CAN BE GATHERED  
RELIABLY AND WITHOUT DEGRADING SYSTEM PERFORMANCE IS  
DESCRIBED. (MODIFIED AUTHOR ABSTRACT)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 780 732 9/2  
BALLISTIC RESEARCH LABS ABERDEEN PROVING GROUND MD

DYNAMIC STORAGE ALLOCATION FOR THE BRLESC II  
COMPUTER.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,  
MAY 74 29P HIRSCHBERG, MORTON A. ;  
REPT. NO. BRL-1718

UNCLASSIFIED REPORT

DESCRIPTORS: \*COMPUTER PROGRAMMING, MEMORY DEVICES,  
ALLOCATIONS, SUBROUTINES, FORTRAN (U)  
IDENTIFIERS: \*BRLESC 2 COMPUTER, \*COMPUTER STORAGE  
MANAGEMENT, SIMSCRIPT PROGRAMMING LANGUAGE (U)

THE USE OF DYNAMIC STORAGE ALLOCATION FOR THE  
BRLESC II COMPUTER IS DESCRIBED, AS WELL AS THE USE  
OF LINKED LISTS. THIS SYSTEM WAS FASHIONED AFTER  
THE DYNAMIC STORAGE SCHEME USED IN SIMSCRIPT.  
SOME OF THE SIMSCRIPT NAMES BEING QUITE  
DESCRIPTIVE HAVE BEEN USED HERE. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 781 182 9/2  
MITRE CORP BEDFORD MASS

DESIGN OF A SECURE COMMUNICATIONS  
PROCESSOR: CENTRAL PROCESSOR,

(U)

JUN 74 98P TASKER,P. S. ;  
REPT. NO. MTR-2439-VOL-3  
CONTRACT: F19628-73-C-0001  
PROJ: AF-7210  
MONITOR: ESD TR-74-181

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: \*DATA PROCESSING SECURITY, \*CENTRAL  
PROCESSING UNITS, \*COMMUNICATIONS NETWORKS, MEMORY  
DEVICES, SWITCHING CIRCUITS, COMPUTER PROGRAMMING,  
NETWORK FLOWS

(U)

IDENTIFIERS: COMPUTER NETWORKS, IC I-50  
COMMUNICATIONS PROCESSORS, ROUTING, COMPUTER  
INFORMATION SECURITY

(U)

THE SECURE COMMUNICATIONS PROCESSOR IS  
INTENDED AS A FEASIBILITY MODEL FOR USE IN TESTING  
AND VERIFYING WORK CONCERNED WITH THE DESIGN AND  
CERTIFICATION OF SECURE ACCESS CONTROLS FOR COMPUTER  
SYSTEMS. THE SYSTEM WAS CONCEIVED TO BE HARDWARE  
INDEPENDENT, BUT IS IMPLEMENTED ON AN INTERCOMPUTER  
COMMUNICATIONS CORPORATION I-50 COMMUNICATIONS  
PROCESSOR. THE REPORT, THE THIRD CONTAINING THE  
DESIGN DETAILS, DISCUSSES THE CENTRAL PROCESSOR  
(PC), HALF OF THE DUAL PROCESSOR MESSAGE SWITCH.  
THIS VOLUME CONTAINS IMPLEMENTATION DETAILS OF THE  
ACCESS CONTROL AND SPECIAL INSTRUCTIONS FOR THE  
FIRMWARE AND SOFTWARE REQUIRING CERTIFICATION AS WELL  
AS OPERATING CONCEPTS AND A 'USERS' MANUAL' FOR  
CONSTRUCTING THE UNCERTIFIED ROUTINES FOR PC.

(AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 783 323 9/2  
RAND CORP SANTA MONICA CALIF

COMPUTERS IN THE 1980S -- TRENDS IN HARDWARE  
TECHNOLOGY.

(U)

MAR 74 20P TURN,REIN ;  
REPT. NO. P-5189

UNCLASSIFIED REPORT

DESCRIPTORS: \*COMPUTERS, \*FORECASTING, LOGIC  
CIRCUITS, SWITCHING CIRCUITS, PARALLEL PROCESSORS,  
MEMORY DEVICES, SOLID STATE ELECTRONICS, METAL  
OXIDE SEMICONDUCTORS, BIPOLAR TRANSISTORS, COMMAND  
AND CONTROL SYSTEMS

(U)

IDENTIFIERS: \*COMPUTER SYSTEMS HARDWARE, ARRAY  
PROCESSORS, SEMICONDUCTOR COMPUTER STORAGE

(U)

THE PAPER PRESENTS A TECHNOLOGICAL FORECAST OF  
COMPUTER HARDWARE TRENDS IN THE 1975 TO 1990 TIME  
PERIOD. PROJECTED ARE THE IMPROVEMENTS IN  
SWITCHING SPEED, POWER CONSUMPTION, COST AND PHYSICAL  
SIZE OF BIPOLAR AND METAL-OXIDE SEMICONDUCTOR LOGIC  
CIRCUITS. BASED ON THESE, THE COMPUTING SPEED OF  
PROCESSORS FOR SEVERAL COMPUTER ARCHITECTURES ARE  
FORECAST -- UNIPROCESSORS, PIPELINE PROCESSORS, ARRAY  
PROCESSORS, ASSOCIATIVE ARRAY PROCESSORS, AND FOR  
COMMAND-CONTROL, MULTIPROCESSORS. THE STORAGE  
CAPACITY AND ACCESS MEMORIES, AND SUMMARIZED FOR  
OTHER SOLID-STATE MEMORY COMPONENT TECHNOLOGIES.  
THE PAPER CONCLUDES WITH A DISCUSSION OF  
INNOVATIONS IN COMPUTER SYSTEM DESIGN AND USE WHICH  
BECOME FEASIBLE DUE TO THE EXPECTED HARDWARE  
DEVELOPMENTS. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 783 871 9/2  
WASHINGTON UNIV ST LOUIS MO COMPUTER SYSTEMS LAB

MACROMODULAR COMPUTER DESIGN. PART 1.  
DEVELOPMENT OF MACROMODULES. VOLUME I.  
OVERVIEW OF MACROMODULES.

(U)

DESCRIPTIVE NOTE: FINAL REPT. 1 APR 65-1 DEC 73,  
FEB 74 144P COAKER,CHRISTINE D. ;  
REPT. NO. TR-44  
CONTRACT: SD-302

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SPONSORED IN PART BY NATIONAL  
INSTITUTES OF HEALTH, BETHESDA, MD. SEE ALSO AD-  
783 872.

DESCRIPTORS: \*CENTRAL PROCESSING UNITS,  
\*MODULES(ELECTRONICS), \*LOGIC DEVICES, MEMORY  
DEVICES, SHIFT REGISTERS, INPUT OUTPUT DEVICES,

DATA PROCESSING TERMINALS

(U)

IDENTIFIERS: \*LOGIC DESIGN, ARITHMETIC AND LOGIC  
UNITS, \*MACROMODULES

(U)

THIS SET OF DOCUMENTS REPRESENTS AN ATTEMPT TO  
BRING TOGETHER IN ONE PLACE SUFFICIENT MATERIAL TO  
ENABLE THE READER TO OBTAIN A REASONABLE OVERVIEW OF  
THE MAJOR IDEAS AND CONCEPTIONS THAT GAVE RISE TO THE  
MACROMODULE DEVELOPMENT PROJECT AT WASHINGTON  
UNIVERSITY, AND TO REPORT AND RECORD SOME OF THE  
DETAILS OF THE ENSUING DEVELOPMENT EFFORT AND ITS  
RESULTS. PART 1 OF THE REPORT DEALS WITH THE  
DEVELOPMENT OF PHASE I MACROMODULES, OF WHICH  
OVER 800 MODULES OF 17 TYPES HAVE BEEN CONSTRUCTED  
AND MADE PART OF A WORKING INVENTORY THAT RESIDES AT  
WASHINGTON UNIVERSITY. THE VOLUME CONTAINS TWO  
EXCERPTED REPRINTS THAT PRESENT THE INITIAL  
CONCEPTION OF MACROMODULES AND MEANS FOR IMPLEMENTING  
THEM AS SEEN IN THE EARLY DAYS OF THE PROJECT, AND A  
THIRD REPRINTED REPORT THAT PRESENTS A SUMMARY AND  
OVERVIEW AS OF THE AUTUMN OF 1972.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 783 872 9/2  
WASHINGTON UNIV ST LOUIS MO COMPUTER SYSTEMS LAB

MACROMODULAR COMPUTER DESIGN. PART I.  
DEVELOPMENT OF MACROMODULES. VOLUME II. A  
MACROMODULE USER'S MANUAL.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,  
FEB 74 133P DICKSON,CHRISTINE E. ;  
REPT. NO. TR-45  
CONTRACT: SD-302

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SPONSORED IN PART BY NATIONAL  
INSTITUTES OF HEALTH, BETHESDA, MD. ALSO PUBLISHED  
AS REPT. NO. TR-25. SEE ALSO AD-783 873 AND AD-873  
871.

DESCRIPTORS: \*CENTRAL PROCESSING UNITS,  
\*MODULES(ELECTRONICS), \*LOGIC DEVICES, MEMORY  
DEVICES, SHIFT REGISTERS, INPUT OUTPUT DEVICES,  
DATA PROCESSING TERMINALS, COMPUTER PROGRAMMING  
IDENTIFIERS: \*LOGIC DESIGN, \*MACROMODULES,  
ARITHMETIC AND LOGIC UNITS

(U)

(U)

THE DOCUMENT SERVES AS A COMPREHENSIVE USER'S  
MANUAL FOR MACROMODULES. IT SUPPLIES INFORMATION  
ON MODULE CAPABILITIES AND OTHER FACTS NEEDED IN  
SYSTEM DESIGN, AND ALSO GIVES THE PHYSICAL DETAILS  
NECESSARY TO THE USER IN CONSTRUCTING AND OPERATING  
HIS SYSTEM. EXPLANATIONS ARE AT THE LEVEL OF AN  
'ELECTRONICALLY NAIVE' USER, BUT SOME KNOWLEDGE OF  
MACHINE-LANGUAGE PROGRAMMING IS ASSUMED.

(AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 783 997 9/2  
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

STANDARDIZATION OF THE SWITCHING CURRENT OF  
METALLIC-TAPE CORES FOR MULTI-STABLE  
FERROMAGNETIC ELEMENTS,

(U)

JUL 74 10P KRAVCHENKO, V. B.; LIPMAN,  
R. A.; POPOV, V. V.;  
REPT. NO. FTD-HT-23-1013-74  
PROJ: FTD-T74-05-12

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. OF MNOGOUSTOICHIVYE  
ELEMENTY I IKH PRIMENENIE. SBORNIK STATEI  
(USSR) P134-139 1971, BY FRANK C. VAUGHN.

DESCRIPTORS: \*MAGNETIC CORES, CORE STORAGE,  
MAGNETIC TAPE, SWITCHING, ELECTRIC CURRENT,  
STANDARDIZATION, STEADY STATE, MEASUREMENT,  
TRANSLATIONS, USSR

(U)

STANDARDIZATION OF THE SWITCHING CURRENT OF  
METALLIC-TAPE CORES FOR MULTI-STABLE  
FERROMAGNETIC ELEMENTS--TRANSLATION.

99  
UNCLASSIFIED

/ZOM07

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 784 372 9/2 22/2  
JOHNS HOPKINS UNIV SILVER SPRING MD APPLIED PHYSICS  
LAB

TRIAD COMPUTER.

(U)

DESCRIPTIVE NOTE: TECHNICAL MEMO.,  
AUG 73 175P PERSCHY, J. A. ;ELDER, B.  
M. ;  
REPT. NO. APL-TG-1212  
CONTRACT: N00017-72-C-4401  
MONITOR: GIDEP 347.00.00.00-56-74

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: \*SPACECRAFT COMPONENTS, \*DIGITAL  
COMPUTERS, SATELLITES(ARTIFICIAL), DATA  
PROCESSING EQUIPMENT, MEMORY DEVICES, INTEGRATED  
CIRCUITS, LOGIC DEVICES, INTERFACES  
IDENTIFIERS: \*TRIAD COMPUTER, TRIAD SATELLITE,  
ARITHMETIC AND LOGIC UNITS

(U)

(U)

THE TRIAD COMPUTER IS A THIRD-GENERATION, GENERAL  
PURPOSE, GROUND PROGRAMMABLE DIGITAL COMPUTER USED IN  
THE TRIAD SATELLITE AS A REAL-TIME CONTROLLER  
OPERATING UNDER A PRIORITY INTERRUPT SYSTEM. IT  
CONSISTS OF A DATA PROCESSOR, A MEMORY SECTION, AND A  
POWER PROCESSOR. THE DATA PROCESSOR USES STANDARD  
AND MEDIUM SCALE TTL INTEGRATED CIRCUITS ON HIGH  
DENSITY MULTILAYER BOARDS. THE MEMORY SECTION, WITH  
A CYCLE TIME OF 2.4 MICROSEC CONSISTS OF A 4K-WORD-  
BY-16-BIT AEROSPACE MEMORY STACK AND HYBRID CIRCUITRY  
FOR ADDRESS SELECTION AND DIGIT SENSING, PLUS A READ-  
ONLY MEMORY CONTAINING A BOOTSTRAP LOADER PROGRAM.  
THE POWER PROCESSOR PROVIDES POWER STORAGE PLUS  
POWER LEVEL SELECTION UNDER PROGRAM CONTROL.  
(MODIFIED AUTHOR ABSTRACT)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 784 475 5/9 9/2  
UNIVERSITY OF SOUTHERN CALIFORNIA LOS ANGELES BEHAVIORAL  
TECHNOLOGY LABS

INTERACTIVE COMPUTER GRAPHICS FOR  
PERFORMANCE-STRUCTURE-ORIENTED CAI. (U)

DESCRIPTIVE NOTE: SEMIANNUAL TECHNICAL REPT. 1 JAN-31  
DEC 74.

JUL 74 38P RIGNEY, JOSEPH W. ; TOWNE,  
DOUGLAS M. ; KING, CAROLE A. ;  
REPT. NO. TR-73  
CONTRACT: N00014-67-A-0269-0025, ARPA ORDER-2284  
PROJ: NR-154-326, RR042-06  
TASK: RR042-06-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: \*COMPUTER AIDED INSTRUCTION, \*COMPUTER  
GRAPHICS, \*INTERACTIVE GRAPHICS, SUBSTITUTES,  
MECHANICAL COMPONENTS, OPERATION, COMPUTER  
PROGRAMMING, LEARNING, RETENTION(PSYCHOLOGY),  
VECTOR ANALYSIS, MINICOMPUTERS, DISPLAY SYSTEMS,  
CORE STORAGE, MEMORY DEVICES (U)

IDENTIFIERS: COMPLEX DEVICES, INVISIBLE PROCESSES,  
VECTOR GENERATION (U)

TWO DIFFERENT USES OF INTERACTIVE GRAPHICS IN CAI  
ARE DESCRIBED. INTERACTIVE GRAPHICS MAY BE USED AS  
SUBSTITUTES FOR PHYSICAL DEVICES AND OPERATIONS.  
AN EXAMPLE IS SIMULATION OF OPERATING ON MAN/  
MACHINE INTERFACES, SUBSTITUTING INTERACTIVE GRAPHICS  
FOR CONTROLS, INDICATORS, AND INDICATIONS.  
INTERACTIVE GRAPHICS MAY ALSO BE USED TO EXPLICATE  
INVISIBLE PROCESSES. EXAMPLES ARE INTERACTIVE  
GRAPHICS THAT ALLOW THE STUDENT TO INITIATE  
ANIMATIONS OF PHYSICAL PROCESSES AND INTERACTIVE  
BLOCK DIAGRAMS THAT ALLOW THE STUDENT TO LEARN THE  
FUNCTIONAL ORGANIZATION OF COMPLEX DEVICES.  
PROJECTS ARE UNDERWAY TO TEST THE EFFECTIVENESS OF  
THESE USES. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 784 993 9/2  
NAVAL RESEARCH LAB WASHINGTON D C

A FORTRAN PROGRAM TO UNPACK AND TRANSLATE  
NINE TRACK MAGNETIC TAPE DATA.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,  
JUL 74 20P MOSKO, MARY ELLEN I  
REPT. NO. NRL-MR-2844, NRL-COMPUTER BULL-39

UNCLASSIFIED REPORT

DESCRIPTORS: \*COMPUTER PROGRAMS, \*MAGNETIC TAPE,  
SUBROUTINES, FORTRAN

(U)

IDENTIFIERS: CDC 3800 COMPUTERS

(U)

A FORTRAN PROGRAM HAS BEEN WRITTEN FOR THE CDC  
3800 COMPUTER TO UNPACK DATA WHICH HAS BEEN READ FROM  
NINE TRACK MAGNETIC TAPE AND TRANSLATE THE DATA FROM  
EBCDIC-8, USASCII-8, OR CDC 3800 BCD CODE TO  
CDC 3800 BCD CODE. THE TRANSLATED DATA CAN BE  
RETURNED FROM THE SUBROUTINE IN THE FORM OF ONE  
CHARACTER PER WORD OR EIGHT CHARACTERS PER WORD.  
(AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 784 994 9/2  
NAVAL RESEARCH LAB WASHINGTON D C

A FORTRAN PROGRAM TO COPY NINE TRACK  
MAGNETIC TAPE TO SEVEN TRACK MAGNETIC  
TAPE.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,  
JUL 74 27P MOSKO, MARY ELLEN ;  
REPT. NO. NRL-MR-2845, NRL-COMPUTER BULL-40

UNCLASSIFIED REPORT

DESCRIPTORS: \*COMPUTER PROGRAMS, \*MAGNETIC TAPE,  
FORTRAN, CONTROL SEQUENCES, ALGORITHMS,  
TRANSLATORS

(U)

IDENTIFIERS: CDC 3800 COMPUTERS, TRANSLATOR  
ROUTINES

(U)

A FORTRAN PROGRAM HAS BEEN WRITTEN FOR THE CDC  
3800 COMPUTER TO TRANSLATE SPECIFIED FILES AND  
RECORDS OF A NINE TRACK TAPE FROM EBCDIC-8,  
USASCII-8, OR CDC 3800 BCD CODE, PACKS THIS  
DATA EIGHT CHARACTERS PER WORD, AND WRITES THIS DATA  
ONTO SEVEN TRACK TAPE. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 785 075 9/2  
STANFORD UNIV CALIF STANFORD ELECTRONICS LABS

SEVERAL STOCHASTIC MODELS OF COMPUTER SYSTEMS.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,  
AUG 73 278P COCHI, BERTRAND JEAN ;  
REPT. NO. SU-SEL-74-035, TR-69  
CONTRACT: N00014-67-A-0112-0044

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: \*CENTRAL PROCESSING UNITS, \*QUEUEING THEORY, \*SCHEDULING, MEMORY DEVICES, INPUT OUTPUT DEVICES, TIME SHARING, MATHEMATICAL MODELS, STOCHASTIC PROCESSES, MARKOV PROCESSES, NETWORK FLOWS, THESES

(U)

THE AUTHOR ANALYZES A CPU EXECUTING MORE THAN ONE INSTRUCTION DURING A MEMORY CYCLE AND MAKING REQUESTS TO AN INTERLEAVED MEMORY SYSTEM. THE ANALYSIS LEADS TO AN EXPRESSION FOR THE EXPECTED NUMBER OF INSTRUCTIONS EXECUTED PER MEMORY CYCLE IN TERMS OF THE DEGREE OF INTERLEAVING, THE MAXIMUM NUMBER OF INSTRUCTIONS EXECUTED PER MEMORY CYCLE AND THE PARAMETERS REPRESENTING THE PROGRAM BEHAVIOR. IT IS OBSERVED THAT THE USE OF MEMORY INTERLEAVING INCREASES THE THROUGHPUT BY A FACTOR OF, AT MOST, TWO. QUEUEING NETWORKS AND SEQUENCES OF QUEUEING CENTERS ARE ANALYZED WHEN THE QUEUES HAVE FINITE CAPACITY. OPEN AND CLOSED QUEUEING NETWORKS WITH DIFFERENT PRIORITY CLASSES OF CUSTOMERS AND GENERAL SERVICE TIME AND ARRIVAL TIME DISTRIBUTIONS, DEPENDING ON THE PRIORITY CLASS OF THE CUSTOMER AND THE SERVICE CENTER. FINALLY, THE EFFECTS OF THE DISTRIBUTION OF SERVICE TIME AND THE LENGTH OF THE QUANTUM ON THE MEAN WAITING TIME FOR DIFFERENT QUANTUM CONTROLLED SERVICE DISCIPLINES ARE STUDIED. (MODIFIED AUTHOR ABSTRACT)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZDM07

AD- 785 355 9/2  
FEDERAL COBOL COMPILER TESTING SERVICE WASHINGTON D C

SYNTHETIC PROGRAMS LIBRARY - CONCEPTS AND  
FACILITIES.

(U)

DESCRIPTIVE NOTE: SOFTWARE.

JUN 74 1V  
MONITOR: DOD/DF 74/002

UNCLASSIFIED REPORT

AVAILABILITY: SPECIFY TAPE RECORDING MODE DESIRED:  
7 TRACK, 556 AND 800 BPI, ODD AND EVEN PARITY, BCD; OR  
9 TRACK, 800 BPI ODD PARITY, EBCDIC. PRICE INCLUDES  
USERS GUIDE, AD-785 357. COPIES NOT AVIALBLE FROM  
DDC. ORDER DIRECTLY FROM NTIS.

DESCRIPTORS: \*PROGRAMMING LANGUAGES, \*COMPILERS,  
\*MAGNETIC TAPE, CONVERSION, CONTROL SEQUENCES,  
COMPUTER PROGRAMS

(U)

IDENTIFIERS: \*COBOL, \*SYNTHETIC COMPUTER PROGRAMS,  
BENCHMARK ROUTINES, UNIVAC 1108 COMPUTERS

(U)

A SMALL LIBRARY OF SYNTHETIC COBOL PROGRAMS HAS  
BEEN DEVELOPED, AND EXPERIMENTS ARE BEING CONDUCTED  
TO DETERMINE ITS SUITABILITY AS A SOURCE OF BENCHMARK  
PROGRAMS. THE SYNTHETIC PROGRAMS ARE TASK-ORIENTED  
AND COMPLETELY PORTABLE. PARAMETERS CAN BE VARIED  
AT COMPILE TIME OR EXECUTE TIME, AND THE DESIGN OF  
EACH PROGRAM IS SUITABLE TO EXTENSIONS, SO THAT A  
WIDE RANGE OF EVENTUALITIES CAN BE ACCOMODATED.  
THE BEHAVIOR OF THESE PROGRAMS, RUNNING  
INDEPENDENTLY AND IN A MIX, HAS BEEN MEASURED.  
SEVERAL PROBLEM AREAS HAVE BEEN UNCOVERED AND ARE  
DISCUSSED IN THE ATTACHED PAPER. ALSO DISCUSSED  
ARE POTENTIAL USES AND LIMITATIONS OF SYNTHETIC  
PROGRAMS IN THE CONTEXT OF SYSTEM BENCHMARKS.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 785 590 9/2  
FEDERAL COBOL COMPILER TESTING SERVICE WASHINGTON D C

BENCHMARK PORTABILITY SYSTEM. (U)

DESCRIPTIVE NOTE: SOFTWARE.

JUN 74 1V  
MONITOR: DOD/DF 74/001

UNCLASSIFIED REPORT

AVAILABILITY: SPECIFY TAPE RECORDING MODE DESIRED:  
7 TRACK, 556 AND 800 BPI, ODD AND EVEN PARITY, BCD; OR  
9 TRACK, 800 BPI, ODD PARITY, EBCDIC. PRICE INCLUDES  
USERS GUIDE, AD-785 356. COPIES NOT AVAILABLE FROM  
DDC. ORDER DIRECTLY FROM NTIS.

DESCRIPTORS: \*PROGRAMMING LANGUAGES, \*COMPILERS,  
\*MAGNETIC TAPE, VALIDATION, CONVERSION, CONTROL  
SEQUENCES, COMPUTER PROGRAMS (U)

IDENTIFIERS: \*COBOL, \*BENCHMARK ROUTINES,  
TRANSLATOR ROUTINES, COMPUTER PROGRAM  
VERIFICATION, BENCHMARK PORTABILITY SYSTEM (U)

THE REPORT PRESENTS THE SOFTWARE OF THE BENCHMARK  
PORTABILITY SYSTEM ON MAGNETIC TAPE. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 786 694 9/2  
NAVAL RESEARCH LAB WASHINGTON D C

ON THE EXTERNAL STORAGE FRAGMENTATION  
PRODUCED BY FIRST-FIT AND BEST-FIT  
ALLOCATION STRATEGIES.

(U)

DESCRIPTIVE NOTE: INTERIM REPT.,  
JUL 74 32P SHORE, JOHN E. I  
REPT. NO. NRL-MR-2848  
PROJ: NRL-54BD2-15, RF21-22  
TASK: RF21-22-401

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: \*MEMORY DEVICES, \*ALLOCATIONS,  
STATISTICAL ANALYSIS, COMPUTER PROGRAMMING

(U)

IDENTIFIERS: \*COMPUTER STORAGE MANAGEMENT

(U)

PUBLISHED COMPARISONS OF THE EXTERNAL FRAGMENTATION  
PRODUCED BY FIRST-FIT AND BEST-FIT MEMORY ALLOCATION  
HAVE NOT BEEN CONSISTENT. THROUGH SIMULATION, A  
SERIES OF EXPERIMENTS WERE PERFORMED IN ORDER TO  
OBTAIN BETTER DATA ON THE RELATIVE PERFORMANCE OF  
FIRST-FIT AND BEST-FIT AND A BETTER UNDERSTANDING OF  
THE REASONS UNDERLYING OBSERVED DIFFERENCES. THE  
TIME-MEMORY-PRODUCT EFFICIENCIES OF FIRST-FIT BEST-  
FIT WERE GENERALLY WITHIN ABOUT 1% OF EACH OTHER.  
EXCEPT FOR SMALL POPULATIONS, THE SIZE OF THE  
REQUEST POPULATION HAD LITTLE EFFECT ON ALLOCATION  
EFFICIENCY. FOR EXPONENTIAL DISTRIBUTIONS OF  
REQUESTS, FIRST-FIT OUTPERFORMED BEST-FIT, BUT FOR  
NORMAL AND UNIFORM DISTRIBUTIONS, AND FOR EXPONENTIAL  
DISTRIBUTIONS DISTORTED IN VARIOUS WAYS, BEST-FIT  
OUTPERFORMED FIRST-FIT. (MODIFIED AUTHOR  
ABSTRACT)

(U)

UNCLASSIFIED

DOC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 786 842 9/2  
ARMY FOREIGN SCIENCE AND TECHNOLOGY CENTER CHARLOTTESVILLE  
VA

BRANCHED CORE LOGIC ELEMENTS,

(U)

APR 74 19P VESELOVSKIIZ, G. G. ;  
ROZENBLAT, M. A. ; SUBBOTINA, G. V. ;  
TSAREGRADSKII, F. I. ;  
REPT. NO. FSTC-HC-23-346-74

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: UNEDITED TRANS. OF MONO. MAGNITNYE  
ELEMENTY DISKRETNOGO DEISTVIYA, MOSCOW, 1972 P72-  
80.

DESCRIPTORS: \*LOGIC CIRCUITS, \*MAGNETIC CORES,  
BOOLEAN ALGEBRA, TRANSLATIONS, USSR

(U)

IDENTIFIERS: LOGIC DESIGN

(U)

ONE OF THE WAYS OF BOOSTING THE RELIABILITY AND  
CUTTING THE COSTS OF MAGNETIC DIGITAL ELEMENTS AND  
SYSTEMS IS CONSTRUCTING SYSTEMS OF MAGNETIC ELEMENTS  
AND DEVICES WITH BRANCHED CORES; THIS SHARPLY REDUCES  
THE TOTAL NUMBER OF CORES, WINDINGS, AND OTHER  
COMPONENTS. THESE ELEMENTS AND DEVICES USED IN  
MAKING WINDINGS OF THE SINGLE-TURN TYPE, OPEN UP THE  
POTENTIALITY OF CONSTRUCTING INTEGRATED MAGNETIC  
DIGITAL CIRCUITS BASED ON GROUP METHODS OF  
MANUFACTURE. THIS POSSIBILITY IS DISCUSSED IN THE  
REPORT.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 787 008 9/2  
STANFORD UNIV CALIF DIGITAL SYSTEMS LAB

INTERFERENCE IN MULTIPROCESSOR COMPUTER  
SYSTEMS WITH INTERLEAVED MEMORY. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,  
AUG 74 44P BASKETT,FOREST & SMITH, ALAN  
JAY;  
REPT. NO. STAN-CS-74-450, TR-90  
CONTRACT: N00014-67-A-0112-0044, NSF-GJ-35720  
PROJ: SRI-6930, SRI-6940

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: \*MULTIPROCESSORS, \*MEMORY DEVICES,  
MATHEMATICAL MODELS, MARKOV PROCESSES, QUEUEING  
THEORY, COMPUTER PROGRAMMING, GRAPHICS (U)

THE AUTHORS ANALYZE THE MEMORY INTERFERENCE CAUSED  
BY SEVERAL PROCESSORS SIMULTANEOUSLY USING SEVERAL  
MEMORY MODULES. THE EXACT RESULTS ARE COMPUTED FOR  
A SIMPLE MODEL OF SUCH A SYSTEM. THE AUTHORS  
DERIVE THE LIMITING VALUE FOR THE RELATIVE DEGREE OF  
MEMORY INTERFERENCE AS THE SYSTEM SIZE INCREASES.  
THE MODEL OF THE LIMITING BEHAVIOR OF THE SYSTEM  
YIELDS APPROXIMATE RESULTS FOR THE SIMPLE MODEL AND  
ALSO SUGGESTS THAT THE RESULTS ARE VALID FOR A MUCH  
LARGER CLASS OF MODELS INCLUDING THOSE MORE NEARLY  
LIKE REAL SYSTEMS THAN THE SIMPLE MODEL. THE  
AUTHORS TEST THE ASSUMPTIONS AND RESULTS OF THE  
SIMPLE MODEL AGAINST SOME MEASUREMENTS OF PROGRAM  
BEHAVIOR AND SIMULATIONS OF SYSTEMS USING MEMORY  
REFERENCES FROM REAL PROGRAMS. (MODIFIED AUTHOR  
ABSTRACT) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 787 031 9/2  
BROWN UNIV PROVIDENCE R I CENTER FOR COMPUTER AND  
INFORMATION SCIENCES

REGIME BEHAVIOR IN PAGE REFERENCING  
PATTERNS OF COMPUTER PROGRAMS,

(U)

JUL 74 105P SAMPSON,PAUL D.  
REPT. NO. 28  
CONTRACT: N00014-67-A-0191-0026

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: REPORT ON PATTERN ANALYSIS.

DESCRIPTORS: \*COMPUTER PROGRAMMING, \*MEMORY DEVICES,  
COMPILERS, FORTRAN

(U)

IDENTIFIERS: \*PERFORMANCE EVALUATION,  
COMPUMETRICS, \*PAGING, COMPUTER STORAGE  
MANAGEMENT

(U)

THE EXECUTION OF COMPUTER PROGRAMS IN MODERN  
MULTIPROGRAMMED ENVIRONMENTS MUST BE FREQUENTLY  
INTERRUPTED FOR REFERENCE TO INFORMATION STORED IN  
DIFFERENT LEVELS OF MEMORY. IT FOLLOWS THAT THE  
MANNER IN WHICH PROGRAMS REFERENCE STORED INFORMATION  
IS OF PRIMARY IMPORTANCE IN THE EVALUATION OF  
COMPUTER PERFORMANCE. THIS PAPER DESCRIBES A STUDY  
OF SOME OF THE CHARACTERISTICS OF PROGRAM REFERENCING  
PATTERNS.

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZDM07

AD- 787 677 9/2  
COMPUTER CORP OF AMERICA CAMBRIDGE MASS

DATA COMPUTER PROJECT.

(U)

DESCRIPTIVE NOTE: SEMI-ANNUAL TECHNICAL REPT. 13 MAR-30  
JUN 74.

JUN 74 96P

CONTRACT: MDA903-74-C-0225, ARPA ORDER-2687

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: \*DATA STORAGE SYSTEMS, \*COMMUNICATIONS  
NETWORKS, DATA PROCESSING, MEMORY DEVICES,  
INTERFACES, COMPUTER PROGRAMMING, PROGRAMMING  
LANGUAGES

(U)

IDENTIFIERS: DATA COMPUTER PROJECT, \*COMPUTER  
NETWORKS, ARPA COMPUTER NETWORK

(U)

THE DATA COMPUTER SYSTEM IS BEING DESIGNED AS A  
LARGE-SCALE DATA STORAGE UTILITY TO BE ACCESSED FROM  
REMOTE COMPUTERS ON THE ARPANET AND, POTENTIALLY,  
ON OTHER NETWORKS. THE DEVELOPMENT IS PHASED, WITH  
EACH SUCCESSIVE RELEASE OF THE SYSTEM OFFERING  
INCREASED CAPABILITIES TO USERS. DURING THE  
PRESENT REPORTING PERIOD, THE SECOND MAJOR RELEASE OF  
THE SYSTEM BECAME OPERATIONAL. THIS RELEASE, WHILE  
STILL PRIMITIVE IN MANY RESPECTS, IS BEGINNING TO  
PROVIDE EXPERIENCE WITH ACTUAL APPLICATIONS AND USER  
PROGRAMS. (AUTHOR)

(U)

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UNCLASSIFIED

/ZDM07

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 787 861 9/2  
ROME AIR DEVELOPMENT CENTER GRIFFISS AFB N Y

AN INTRODUCTION TO RADC/DICEF'S C8500  
COMPUTER SYSTEM.

(U)

AUG 74 101P STURDEVANT,NORMAN J. ;  
REPT. NO. RADC-TR-74-215  
PROJ: AF-4519

UNCLASSIFIED REPORT

DESCRIPTORS: \*CENTRAL PROCESSING UNITS, MEMORY  
DEVICES, LOGIC DEVICES, INPUT OUTPUT DEVICES,  
COMPUTER PROGRAMMING

(U)

IDENTIFIERS: COLLINS 8500 COMPUTERS

(U)

THE INTENT OF THIS REPORT IS TWOFOLD. FIRST, IT  
IS TO ESTABLISH A SINGLE DOCUMENT WHICH CAN PROVIDE  
THE READER WITH A PRELIMINARY AND FUNDAMENTAL  
UNDERSTANDING OF THE OPERATING CONCEPTS AND INHERENT  
CAPABILITIES OF THE COLLINS C8500 COMPUTER  
SYSTEM. SECONDLY, TO PROVIDE AN APPRAISAL OF THE  
SUITABILITY AND UTILITY OF THE C8500 SYSTEM BASED  
ON PROJECTED EXPERIMENTATION REQUIREMENTS IN DIRECT  
SUPPORT OF RADC'S COMMUNICATIONS AND NAVIGATION  
DIVISION MISSION. IT IS INTENDED THAT THIS  
INFORMATION WILL PROVIDE THE READER WITH AN  
UNDERSTANDING OF THE SYSTEM FROM A PROSPECTIVE USER'S  
STANDPOINT. (MODIFIED AUTHOR ABSTRACT) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 787 870 8/2 9/2  
INFORMATICS INC ROME N Y

LINEAL TO RASTER IMAGE CONVERSION SYSTEM.  
VOLUME I, SYSTEM DESCRIPTION. (U)

DESCRIPTIVE NOTE: FINAL REPT. NOV 72-JUL 74,  
AUG 74 37P STANNARD, JOHN E. , JR.;  
HARODECKI, KENNETH D. ;  
REPT. NO. TR-74-1574 VOL-1  
CONTRACT: F30602-73-C-0086  
MONITOR: RADC TR-74-233-VOL-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2, AD-787  
871.

DESCRIPTORS: \*MAPPING, \*COMPUTER GRAPHICS,  
\*COMPUTER PROGRAMMING, PLOTTERS, MEMORY DEVICES,  
INTERFACES (U)

IDENTIFIERS: PDP-9 COMPUTERS, PDP-15  
COMPUTERS (U)

THIS REPORT DESCRIBES THE COMPUTER PROGRAMS WHICH  
WERE WRITTEN TO PROVIDE (1) THE CONVERSION OF  
DIGITAL DATA FROM A LINEAL FORMAT TO A RASTER IMAGE  
FORMAT AND (2) THE CAPABILITY TO GENERATE AND  
PLACE POINT SYMBOLS AND ALPHA-NUMERICS. ALSO  
INCLUDED IN THE REPORT ARE THE RESULTS OF A STUDY  
WHICH INVESTIGATED THE POSSIBILITY OF CONSOLIDATING  
THE EXISTING CARTOGRAPHIC DIGITIZING PLOTTER  
(CDP) SYSTEM AND EXPERIMENTAL COMPILEATION  
CONSOLE (ECC) SYSTEM. THE IMAGE CONVERSION  
PROGRAMS OPERATE ON THE H635/645 COMPUTER AT RADC  
AND THE PLACEMENT PROGRAMS ON THE PDP-9/PDP-15  
COMPUTERS. THE CONSOLIDATED CDP/ECC SYSTEM  
WOULD BE IMPLEMENTED ON THE PDP-9. (AUTHOR) (U)

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UNCLASSIFIED

/ZOM07

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 787 871 8/2 9/2  
INFORMATICS INC ROME N Y

LINEAL TO RASTER IMAGE CONVERSION SYSTEM.  
VOLUME II, SOFTWARE DOCUMENTATION.

(U)

DESCRIPTIVE NOTE: FINAL REPT. NOV 72-JUL 74,  
AUG 74 368P STANNARD, JOHN E., JR.;  
HARODECKI, KENNETH D.;  
REPT. NO. TR-74-1574 VOL-2  
CONTRACT: F30602-73-C-0086  
MONITOR: RADC TR-74-233-VOL-2

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: \*MAPPING, \*COMPUTER GRAPHICS,  
\*COMPUTER PROGRAMMING, PLOTTERS, MEMORY DEVICES,

(U)

INTERPOLATION, CONTROL SEQUENCES

IDENTIFIERS: PDP-9 COMPUTERS, PDP-15

(U)

COMPUTERS

THIS VOLUME OF THE FINAL TECHNICAL REPORT PROVIDES  
A DETAILED DESCRIPTION OF THE SOFTWARE WHICH WAS  
IMPLEMENTED FOR THE LINEAL TO RASTER IMAGE  
CONVERSION (LRIC) SYSTEM. THE LRIC SYSTEM  
HAS INCREASED THE UTILITY OF THE ADVANCED  
CARTOGRAPHIC SYSTEM (ACS) AT RADC BY ADDING  
THE CAPABILITY TO ENTER POINT SYMBOLS OR APHANUMERIC  
TEXT INTO THE DATA BASE AND MODIFYING THE FORMAT  
CONVERSION PROCESS. THE SYMBOLS AND TEXT ARE  
ENTERED VIA THE CRT CONNECTED TO THE PDP-15  
COMPUTER WITHIN THE RADC EXPERIMENTAL  
CARTOGRAPHIC FACILITY (ECF). THE LINEAL TO  
RASTER CONVERSION, WITH ITS ASSOCIATED OUTPUT FORMAT  
OPTIONS, IS PERFORMED ON THE H635/645 COMPUTER AT  
RADC.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 900 282 9/2  
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF

AEROSPACE MULTIPROCESSOR EXECUTIVE. (U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT. JUN 71-JAN 72,  
JUN 72 205P KILBRIDE,KERRY E.;IWASA,  
LYNN E.;SCHEID,JOHN F.;  
REPT. NO. SDC-TM-4940  
CONTRACT: F33615-71-C-1745  
PROJ: AF-4421, AF-6090  
TASK: 609001  
MONITOR: AFAL TR-72-82

UNCLASSIFIED REPORT

DESCRIPTORS: (\*SUBROUTINES, DATA PROCESSING), (\*COMPUTER PROGRAMS, SUBROUTINES), REAL TIME, AIRBORNE, SPACEBORNE, ERRORS, SCHEDULING, ALGORITHMS, INTERFERENCE, MEMORY DEVICES, FAILURE(ELECTRONICS), INPUT OUTPUT DEVICES, FLOW CHARTING (U)

IDENTIFIERS: AVIONICS, COMPUTER PROGRAMS, COROUTINES, \*EXECUTIVE ROUTINES, MESSAGE TRAFFIC, COMPUTERS, MULTIPLE OPERATION, MULTIPROGRAMMING, PARALLEL PROCESSING (U)

THE PURPOSE OF THE PROJECT WAS TO PRODUCE A FLEXIBLE AND SIMPLE EXECUTIVE STRUCTURE, SUPPORTING A BROAD SPECTRUM OF APPROACHES TO SCHEDULING, PARALLEL PROCESSING, RESOURCE ALLOCATION AND GRACEFUL DEGRADATION. THE EXECUTIVE ITSELF MUST BE CAPABLE OF OPERATING DEDICATED TO A SINGLE PROCESSOR, TO FLOAT FREELY AMONG PROCESSORS, OR ANY COMBINATION OF THE TWO METHODS. THE EXECUTIVE MUST HAVE WIDE APPLICABILITY AMONG MANY TYPES OF MULTIPROCESSOR DEVICES AND REAL-TIME DATA PROCESSING APPLICATIONS. THE EXECUTIVE STRUCTURE IS TO BE USED IN FUTURE GROUND-BASED, AIRBORNE AND SPACEBORNE APPLICATIONS BY TAILORING THE DESIGN TO GIVEN SPECIFIC MISSION COMPUTING REQUIREMENTS. THIS APPROACH IS EXPECTED TO AVOID THE CONVENTIONAL DIFFICULTIES OF SOFTWARE PRODUCTION BY FACILITATING TIMELY AND ORDERLY PLANNING AND IMPLEMENTATION OF SOFTWARE FOR AEROSPACE MULTIPROCESSORS. (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 907 626 17/2 9/2 5/2  
RAND CORP SANTA MONICA CALIF

INFORMATION PROCESSING/DATA AUTOMATION  
IMPLICATIONS OF AIR FORCE COMMAND AND  
CONTROL REQUIREMENTS IN THE 1980S (CCIP-85).  
VOLUME V. TECHNOLOGY TRENDS:  
HARDWARE.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,  
JAN 73 281P TURN,REIN ;SINE,BARRY ;  
REPT. NO. R-1011-PR  
CONTRACT: F44620-67-C-0045  
PROJ: AF-1306  
MONITOR: SAMSO,SAMSO XRS-71-1-VOL-5,TR-72-122-  
VOL-5

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (\*COMMAND AND CONTROL SYSTEMS, \*DATA  
PROCESSING), (\*DIGITAL COMPUTERS, AIR FORCE OPERATIONS),  
INFORMATION RETRIEVAL, PLANNING, INTEGRATED SYSTEMS,  
SCIENTIFIC RESEARCH, MILITARY REQUIREMENTS, AUTOMATION,  
COMPUTER PROGRAMMING, WAR GAMES, COMPUTERS, DATA STORAGE  
SYSTEMS, RECORDING SYSTEMS, MANEUVERS, MATHEMATICAL  
ANALYSIS, SEMICONDUCTORS, COMMUNICATIONS CENTRAL, GLOBAL  
COMMUNICATION SYSTEMS, SURVIVAL(PERSONNEL), NUCLEAR  
EXPLOSIONS, MEMORY DEVICES, COMPUTER LOGIC, ANALOG-  
DIGITAL COMPUTERS, COMPUTERS, GATES(CIRCUITS),  
ELECTROOPTICS, DISPLAY SYSTEMS (U)

IDENTIFIERS: AMORPHOUS MATERIALS, SEMICONDUCTORS,  
ASSOCIATIVE PROCESSORS, AVIONICS, COMPUTER PROGRAMS,  
HEAD UP DISPLAYS, \*INFORMATION PROCESSING, LARGE SCALE  
INTEGRATION, MAGNETIC BUBBLES, MASS MEMORIES, METAL  
OXIDE SEMICONDUCTORS, PLATED WIRE MEMORIES, RANDOM  
ACCESS MEMORIES, TECHNOLOGICAL FO (U)

THIS VOLUME OF THE CCIP-85 STUDY REPORT DESCRIBES  
CURRENT STATE OF THE ART OF DIGITAL-COMPUTER-HARDWARE  
TECHNOLOGY AND FORECASTS THE APPLICATION OF THIS  
TECHNOLOGY TO AIR FORCE COMMAND AND CONTROL  
SYSTEMS OVER THE NEXT 20 YEARS. ESTIMATES OF THE  
TECHNICAL CHARACTERISTICS AND CAPABILITIES OF DATA-  
PROCESSING SYSTEMS, SUBSYSTEMS, AND COMPONENTS THAT  
ARE LIKELY TO BE AVAILABLE OR THAT COULD BE DEVELOPED  
FOR AIR FORCE COMMAND AND CONTROL SYSTEM  
APPLICATIONS IN THE 1980S ARE GIVEN. THE APPROACH  
TAKEN HAS BEEN CALLED 'SURPRISE-FREE' TECHNOLOGICAL  
FORECASTING, (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 908 524 9/4 17/2  
ELECTRONIC COMMUNICATIONS INC ST PETERSBURG FLA

DIGITAL INTERFACE CODE CONVERTER. (U)

DESCRIPTIVE NOTE: FINAL REPT. 23 JUN 71-23 DEC 72,  
JAN 73 50P BETTS, WILLIAM L. MOORE,  
WILLIAM H. STAUDT, FEATHER A.;  
REPT. NO. ECI-1-AER-0035  
CONTRACT: DAAB07-71-C-0344  
MONITOR: ECOM 0344-F-71

UNCLASSIFIED REPORT

DESCRIPTORS: (\*CODING, DIGITAL SYSTEMS), (\*DATA  
TRANSMISSION SYSTEMS, COMMUNICATION SYSTEMS!,  
INTERFACES, PULSE CODE MODULATION, MULTIPLEXING,  
MAPPING, SIMULATION, MEMORY DEVICES, INFORMATION THEORY,  
SYNCHRONIZATION(ELECTRONICS), ANALOG SYSTEMS, DETECTORS,  
MATHEMATICAL MODELS (U)

IDENTIFIERS: \*CODE CONVERTERS, COMPUTERIZED  
SIMULATION, READ ONLY MEMORIES, STRATEGIC  
COMMUNICATIONS, TACTICAL COMMUNICATIONS (U)

THE DESIGN, DEVELOPMENT, FABRICATION, AND TESTING  
OF ONE EXPLORATORY DEVELOPMENT MODEL OF THE DIGITAL  
INTERFACE CODE CONVERTER WAS COMPLETED. THE  
CODE CONVERTER INTERFACES TWO PCM MULTIPLEXERS  
WHICH UTILIZE DIFFERENT COMPANDING CHARACTERISTICS,  
BIT RATES, SYNCHRONIZATION CODE FORMATS, AND  
SIGNALLING FORMATS. THE AACOMS TD-352 AND TD-  
660 TACTICAL MULTIPLEXERS WHICH USE A 6-BIT  
QUANTIZED, 3 SEGMENT COMPANDED PCM FORMAT ARE  
DIGITALLY INTERFACED TO THE STRATEGIC TD-968  
MULTIPLEXER WHICH USES AN 8-BIT QUANTIZED, 15 SEGMENT  
COMPANDED PCM FORMAT. CONVERSIONS BETWEEN THE  
TACTICAL IN-BAND TONE SIGNALLING FORMAT AND THE  
STRATEGIC E AND M SIGNALLING FORMAT ARE MADE BY  
THE CODE CONVERTER. THE CURRENT INTERFACE IS ON A  
SERIAL 12-CHANNEL BASIS AND A DESIGN PLAN HAS BEEN  
DEVELOPED FOR IMPLEMENTATION OF A 24-CHANNEL  
INTERFACE USING TD-204 OR TD-754 COMBINERS.  
RATE CONVERSION IS PERFORMED VIA FREQUENCY  
MULTIPLYING PHASE LOCKED LOOPS, FRAME SYNCHRONIZATION  
IS ESTABLISHED, A MAPPING BETWEEN THE 2 CODES IS  
PERFORMED VIA READ-ONLY MEMORIES, AND SIGNALLING  
INFORMATION CONVERSION IS PERFORMED VIA A PHASE  
LOCKED LOOP TONE DETECTOR AND A DIGITAL TONE  
GENERATOR. THE MAPPING OPTIMIZES PERFORMANCE IN THE  
AREAS OF SIGNAL-TO-IDLE CHANNEL NOISE RATIO, SIGNAL-  
TO-QUANTIZING NOISE RATIO, (U)

117  
UNCLASSIFIED

/ZOM07

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZDM07

AD- 911 659 9/2  
AIR FORCE WEAPONS LAB KIRTLAND AFB N MEX

PLATED-WIRE MEMORY STATE-OF-THE-ART STUDY  
(1972). (U)

DESCRIPTIVE NOTE: TECHNICAL REPT. 1 OCT-30 NOV 72,  
JUN 73 57P IVES,JOHN M. I  
REPT. NO. AFWL-TR-73-115  
PROJ: AF-8809  
TASK: 880903

UNCLASSIFIED REPORT

DESCRIPTORS: (\*MEMORY DEVICES, STATE-OF-THE-ART  
REVIEWS), DAMAGE, RADIATION EFFECTS, HARDENING, MAGNETIC  
FIELDS, SWITCHING CIRCUITS, COSTS, INPUT OUTPUT DEVICES,  
WIRE, COILS, HELIXES, SURFACE PROPERTIES, FILMS,  
TRANSFORMERS, NUCLEAR RADIATION, VULNERABILITY,  
DECODING (U)

IDENTIFIERS: NONDESTRUCTIVE READOUTS, \*PLATED WIRE  
MEMORIES, RADIATION HARDENING (U)

A WIRE PLATED WITH A MAGNETIC SURFACE CAN BE USED  
AS A COMPUTER MEMORY ELEMENT BY ALTERNATING THE  
POLARITY OF THE MAGNETIC FIELD. WHILE THE WIRE IN  
DIFFERENT ENCLOSURE CONFIGURATIONS CAN HOLD ITS FIELD  
IN EITHER A LONGITUDINAL OR A RADIAL DIRECTION, THE  
RADIALLY ORIENTED FIELD CURRENTLY IS FOUND TO HAVE  
MANY ADVANTAGES WITH RESPECT TO SWITCHING SPEED,  
RADIATION HARDNESS, AND ASSOCIATED PERIPHERAL  
EQUIPMENT. THE CONSTRUCTION OF THE WIRE PRESENTS  
MANY PARAMETER BALANCING PROBLEMS AND NEEDS VERY  
TIGHT ENVIRONMENTAL CONTROLS FOR PRACTICAL  
PRODUCTION. THESE PROBLEMS HAVE NOT YET BEEN  
ELIMINATED, KEEPING THE BIT COST IN THESE MEMORIES  
HIGH. THE PERFORMANCE, HOWEVER, OF THE RADIALLY  
ORIENTED TYPE COMPARED TO FERRITE CORES AND  
SEMICONDUCTOR MEMORIES AUGMENTS THIS HIGH COST. A  
RECENTLY DEVELOPED 2-MIL WIRE SIZE ELEMENT ELIMINATES  
SOME OF THE PROBLEMS FOUND IN THE PREVIOUSLY STANDARD  
5-MIL WIRE SYSTEMS. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 911 826 9/5 9/1 9/2  
ROCKWELL INTERNATIONAL CORP ANAHEIM CALIF AUTONETICS  
DIV

RELIABILITY EVALUATION OF LSI  
MICROCIRCUITS.

(u)

DESCRIPTIVE NOTE: FINAL REPT. APR 71-OCT 72,  
MAY 73 211P LINDWEDEL, JAMES H.  
REPT. NO. C72-1032/201  
CONTRACT: F30602-71-C-0230  
MONITOR: RADC TR-73-127

UNCLASSIFIED REPORT

DESCRIPTORS: (\*INTEGRATED CIRCUITS, TEST METHODS),  
(\*SEMICONDUCTOR DEVICES, RELIABILITY(ELECTRONICS)),  
SEMICONDUCTOR DIODES, SILICON, MOLYBDENUM, DOPING,  
HERMETIC SEALS, SHIFT REGISTERS, LOGIC CIRCUITS,  
GATES(CIRCUITS), MEMORY DEVICES, DIGITAL COMPUTERS,  
CLOCKS, DRIFT, FAILURE(ELECTRONICS), PREDICTIONS,  
DAMAGE, RADIATION EFFECTS (u)

IDENTIFIERS: BUFFER STORAGE, COMPLEMENTATRY METAL  
OXIDE SEMICONDUCTORS, COUNTING CIRCUITS, ION  
IMPLANTATION, \*LARGE SCALE INTEGRATION, METAL OXIDE  
SEMICONDUCTORS, P CHANNEL METAL OXIDE SEMICONDUCTORS,  
RANDOM ACCESS MEMORIES, SCHOTTKY BARRIER DEVICES,  
SEMICONDUCTOR DIODES (u)

THE OBJECTIVES OF THIS EVALUATION WERE TO (1)  
DEFINE COMMON FAILURE MODES; (2) DOCUMENT FAILURE  
ANALYSIS; AND (3) DEVELOP BETTER AND LOWER COST  
ELECTRICAL AND STRESS TEST TECHNIQUES FOR PREDICTING,  
ASSESSING, AND ASSURING THE RELIABILITY OF LSI  
MICROCIRCUITS. THE APPROACH TO THE EVALUATION  
INCLUDED A CANVASS OF THE INDUSTRY FOR FAILURE MODES  
EXPERIENCED, TESTS USED, AND AVAILABLE PROCESS AND  
LOGIC FUNCTION TYPES. NEXT, AN OPTIMIZED AND  
PRACTICAL SET OF ELECTRICAL TESTS AND ELECTRICAL-  
THERMAL STRESS TESTS WERE FORMULATED FOR A QUANTITY  
OF 595 DEVICES SELECTED HAVING HERMETICALLY SEALED  
PACKAGES AND MANUFACTURING DATE IN THE FIRST QUARTER  
OF 1971. PROCESS TYPES INCLUDED PMOS, PMOS ION  
IMPLANT, PMOS SILICON GATE, PMOS MOYBDENUM GATE,  
CMOS, BIPOLAR, DISCRETIONARY WIRED BIPOLAR AND  
SCHOTTKY DIODE CLAMPED BIPOLAR. LOGIC FUNCTIONS  
INCLUDED A DECADE COUNTER, FIVE SHIFT REGISTERS, A  
DIGITAL MULTIPLIER, FIVE RANDOM ACCESS MEMORIES, AND  
A TIME BUFFER REGISTER. FOLLOWING THE STRESS TESTS,  
DEVICES WERE LIFE TESTED AT 125 C UNDER DYNAMIC  
EXCITATION, POWER AND LOAD. (u)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 912 632 5/2 9/2  
NAVAL ELECTRONICS LAB CENTER SAN DIEGO CALIF

ANALYSIS OF HARDWARE AND SOFTWARE STORAGE AND  
RETRIEVAL FUNCTIONS. (U)

DESCRIPTIVE NOTE: TECHNICAL DOCUMENT,  
JUL 73 52P SHEN, JOHN T. ;  
REPT. NO. NELC-TD-259  
PROJ: NELC-Z401

UNCLASSIFIED REPORT

DESCRIPTORS: (\*INFORMATION RETRIEVAL, MEMORY DEVICES),  
(\*DATA STORAGE SYSTEMS, COMPUTER PROGRAMS), DIGITAL  
COMPUTERS, DATA PROCESSING, COSTS, ELECTROMAGNETIC  
COMPATIBILITY, MAINTENANCE, RELIABILITY(ELECTRONICS),  
DATA, ALGORITHMS, COMPUTER LOGIC,  
SEQUENCES(MATHEMATICS), STATISTICAL ANALYSIS,  
INEQUALITIES, DISKS, SIMULATION, COMPILERS (U)

IDENTIFIERS: AN/UYK-7, COMPUTER HARDWARE, COMPUTER  
FILES, \*COMPUTER PROGRAMS, COMPUTERIZED SIMULATION,  
DATA ACQUISITION, DATA BASES, DELAY TIME, FILE  
STRUCTURE, FIRMWARE, MAGNETIC DISK STORAGE, MAGNETIC  
DRUM STORAGE, COMMAND AND CONTROL SYSTEMS, NAVY,  
SHIPBOARD, TACTICAL INTELLIGENCE, PARALLEL  
PROCESSING (U)

THIS REPORT PRESENTS THE RESULTS OF AN ANALYSIS OF  
THE INFORMATION STORAGE AND RETRIEVAL (ISAR)  
FUNCTIONS OF SEVERAL NAVY ISAR SYSTEMS. THE  
ANALYSIS WAS PERFORMED TO PROVIDE FURTHER SUPPORT TO  
THE ADVANCED SOFTWARE TECHNOLOGY DIVISION FOR  
PROJECT 2175. IN BRIEF, THE GUIDING PHILOSOPHY OF  
PROJECT 2175 IS TO DETERMINE THE FEASIBILITY OF  
MECHANIZING STORAGE AND RETRIEVAL FUNCTIONS IN  
MODULAR BUILDING BLOCKS BY COMBINATIONS OF HARDWARE,  
FIRMWARE AND SOFTWARE. RECENT STUDIES HAVE BORNE  
WITNESS TO THE GROWING CONCERN WITH A NUMBER OF  
PROBLEMS INCIDENT TO THE ACQUISITION AND OPERATION OF  
COMPUTER-BASED STORAGE AND RETRIEVAL SYSTEMS. IN  
ESSENCE, THESE PROBLEMS INCLUDE THE FOLLOWING:  
(1) INCREASING SYSTEM DEVELOPMENT COSTS; (2)  
EXTENSIVE TIME REQUIRED TO ACQUIRE NEW SYSTEMS;  
(3) THE VARIETY OF INCOMPATIBLE SYSTEMS AND  
COMPONENTS; (4) EVOLVING REQUIREMENTS PRECIPITATED  
BY THE GROWING COMPLEXITY OF MODERN WARFARE;  
(5) INCREASING COSTS OF MAINTAINING MULTIPLE  
SYSTEMS AND COMPONENTS; (6) LIMITED RELIABILITY OF  
SYSTEM SOFTWARE AND (7) THE TREND TOWARD REDUCED  
FUNDING RESOURCES. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 912 646 9/2 20/4  
AIR FORCE ARMAMENT LAB EGLIN AFB FLA

A COMPUTER PROGRAM FOR EXTRACTING  
AERODYNAMIC DATA FROM MAGNETIC TAPE.

(U)

DESCRIPTIVE NOTE: FINAL REPT. APR-JUN 73,  
JUL 73 33P ROGERS,ROBERT M. ;  
REPT. NO. AFATL-TR-73-147  
PROJ: AF-670D

UNCLASSIFIED REPORT

DESCRIPTORS: (\*COMPUTER PROGRAMS, AERODYNAMIC  
CHARACTERISTICS), WIND TUNNEL MODELS, TEST FACILITIES,  
DATA, DATA PROCESSING, MAGNETIC TAPE, DIGITAL COMPUTERS,  
SUBROUTINES, PROGRAMMING LANGUAGES, AUTOMATION, PUNCHED  
CARDS, AERODYNAMICS

(U)

IDENTIFIERS: CDC 6600 COMPUTERS, \*DATA ACQUISITION,  
\*EXTRACTION, FORTRAN, FORTRAN 4 PROGRAMMING  
LANGUAGE

(U)

THIS REPORT DESCRIBES A FORTRAN IV COMPUTER  
PROGRAM THAT EXTRACTS AERODYNAMIC DATA FROM A  
MAGNETIC TAPE PREPARED FROM DATA TAPES SUPPLIED BY  
WIND TUNNEL TEST FACILITIES. THE PROGRAM IS  
DESIGNED FOR USE ON A CDC 6600 COMPUTER SYSTEM  
ALONG WITH AN S-C 4020 COMPUTER RECORDER  
(PLOTTER). THE DATA SYSTEMS DEVELOPED BY THE  
ARNOLD ENGINEERING DEVELOPMENT CENTER IS USED  
AS A MODEL TO DESIGN THE DATA EXTRACTION STATEMENTS.  
(AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 912 732 15/3.1 9/2  
IBM FEDERAL SYSTEMS DIV GAITHERSBURG MD

PRELIMINARY BMD SOFTWARE DEVELOPMENT FOR IBM  
MULTIPROCESSING SYSTEM. (U)

DESCRIPTIVE NOTE: FINAL REPT.,  
JUL 73 138P GILBERT, J. G.  
CONTRACT: DAHC60-72-C-0091

UNCLASSIFIED REPORT

DESCRIPTORS: \*ANTIMISSILE DEFENSE SYSTEMS, DATA  
PROCESSING, COMPUTER PROGRAMMING, DIGITAL COMPUTERS,  
REAL TIME, COMPUTER PROGRAMS, SEARCH RADAR, ACQUISITION  
RADAR, RADAR TRACKING, FLOW CHARTING, SHIFT REGISTERS,  
SIMULATION, MEMORY DEVICES, SCHEDULING, SIMULATORS (U)  
IDENTIFIERS: \*COMPUTER PROGRAMS, HARDSITE DEFENSE, IBM  
370 COMPUTERS, IBM 360 COMPUTERS, \*COMPUTERS,  
\*MULTIPLE OPERATION, PARALLEL PROCESSORS (U)

THIS FINAL TECHNICAL REPORT DESCRIBES THE  
ACHIEVEMENTS OF THE IBM FEDERAL SYSTEMS  
DIVISION OVER THE TECHNICAL PERFORMANCE PERIOD FOR  
THE CONTRACT. THIS REPORT IS MADE UP OF FOUR  
SECTIONS. SECTION 1 CONTAINS THE CONTRACT SUMMARY,  
THE CONTRACT SCOPE, AND THE CONCLUSIONS AND  
RECOMMENDATIONS DRAWN FROM THE RESULTS OF THE  
EFFORT. SECTION 2 PRESENTS A GENERAL DISCUSSION OF  
THE ROLE OF THE MULTIPROCESSOR IN BALLISTIC MISSILE  
DEFENSE APPLICATIONS. SECTION 3 CONTAINS A  
DESCRIPTION OF THE MPS HARDWARE. SECTION 4  
PRESENTS THE DESCRIPTION OF THE SOFTWARE UTILIZED IN  
THE SIMULATION DEMONSTRATION AND THE RESULTS AND  
CONCLUSIONS OF THE SIMULATION DEMONSTRATION HELD AT  
THE ABMDA HAPDAR FACILITY ON 30 JUNE 1973. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 914 517 9/2 15/3.1 17/9  
RAYTHEON CO WAYLAND MASS EQUIPMENT DIV

ADVANCED DIGITAL SIGNAL PROCESSOR DESIGN  
STUDY. VOLUME II. DESIGN CONCEPT. (U)

DESCRIPTIVE NOTE: FINAL REPT. 4 APR-4 NOV 73,  
NOV 73 224P ALLEN,T. ;GLASS,J. ;HYNES,  
R. ;PERKINS,D. ;  
REPT. NO. ER73-4426-VOL-2  
CONTRACT: DAHC60-73-C-0065  
PROJ: DA-62304-A

UNCLASSIFIED REPORT

DESCRIPTORS: (\*DATA PROCESSING, DIGITAL SYSTEMS), MEMORY  
DEVICES, PULSE COMPRESSION, MATCHED FILTERS, WAVEFORM  
GENERATORS, DIGITAL TO ANALOG CONVERTERS, BANDWIDTH,  
COMPUTER PROGRAMMING, DATA STORAGE SYSTEMS, INTERFACES,  
ANTIMISSILE DEFENSE SYSTEMS, MULTIPLEXING, TRAILING  
EDGE, RADAR, POWER SUPPLIES, RELIABILITY(ELECTRONICS),  
SEQUENCES(MATHEMATICS), ALGORITHMS, VIDEO SIGNALS,  
SPECIFICATIONS, BROADBAND, SHIFT REGISTERS, DETECTION,  
LEADING EDGES (U)

IDENTIFIERS: \*SIGNAL PROCESSING, DATA MANAGEMENT,  
SIGNAL PROCESSING, LOCAL OSCILLATORS, FLIP FLOPS,  
FOURIER TRANSFORMATION, BUTTERWORTH FILTERS, RANDOM  
ACCESS MEMORIES, METAL OXIDE SEMICONDUCTORS, POST  
PROCESSORS (U)

THIS VOLUME DESCRIBES A DESIGN CONCEPT OF A DIGITAL  
SIGNAL PROCESSOR DESIGNED TO MEET THE SPECIFIED  
SYSTEM REQUIREMENTS. THE CONCEPT USES THE  
TECHNIQUES RECOMMENDED AS A RESULT OF THE STUDIES  
DESCRIBED IN VOLUME I. EACH OF THE FOLLOWING  
SUBSYSTEMS ARE DESCRIBED SEPARATELY: DIGITAL  
WAVEFORM GENERATOR, IF CONVERSION, INPUT  
DATA MANAGEMENT, MATCHED FILTER, POST  
PROCESSOR, TEST SEQUENCE CONTROLLER, AND  
CONTROL AND INTERFACE. IN ADDITION, A  
MECHANICAL DESIGN CONCEPT, THERMAL ANALYSIS, AND  
RELIABILITY ANALYSIS FOR THE CONCEPT DESCRIBED ARE  
INCLUDED. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 923 480 8/2 5/2 14/5  
ARMY ENGINEER TOPOGRAPHIC LABS FORT BELVOIR VA

A SYSTEM FOR TOPOGRAPHIC INQUIRY. NUMBER 1.  
MICROGRAPHIC SUBSYSTEM.

(U)

DESCRIPTIVE NOTE: FINAL REPT. OCT 70-SEP 73,  
MAY 74 40P GUNTHER, ALDEN C. ;  
REPT. NO. ETL-ETR-74-2  
PROJ: DMA-4304

UNCLASSIFIED REPORT

DESCRIPTORS: (\*TOPOGRAPHIC MAPS, DATA STORAGE  
SYSTEMS), (\*MICROFORM, MANAGEMENT INFORMATION  
SYSTEMS), MANAGEMENT PLANNING AND CONTROL, DATA  
MANAGEMENT, TERRAIN INTELLIGENCE, INFORMATION  
RETRIEVAL, DATA REDUCTION, ACCURACY, DISTORTION,  
RESOLUTION, DISPLAY SYSTEMS, COMPUTER PROGRAMS,  
HANDLING, SPECIFICATIONS, GRAPHICS, DATA  
PROCESSING, DATA BASES, REMOTE TERMINALS, VIEWERS,  
DISPLAY SYSTEMS

(U)

IDENTIFIERS: STOPIN(SYSTEM FOR TOPOGRAPHIC  
INQUIRY), SYSTEM FOR TOPOGRAPHIC INQUIRY,  
COMPUTER SOFTWARE, \*TOPOGRAPHIC INFORMATION  
SYSTEMS, MICROGRAPHIC SYSTEMS

(U)

THE PURPOSE OF THE DEVELOPMENT WAS TO DEMONSTRATE  
THE CONCEPT OF MICROFORM TOPOGRAPHIC DATA STORAGE AND  
TO DEVELOP A SOFTWARE PACKAGE TO CONTROL A  
MICROGRAPHIC SYSTEM. A COMMERCIALLY AVAILABLE  
SYSTEM WAS LEASED FOR EXPERIMENTATION, AND A SET OF  
SPECIFICATIONS FOR OPERATIONAL HARDWARE WAS  
DEVELOPED. A SOFTWARE DESCRIPTION, THE PROPOSED  
HARDWARE SPECIFICATIONS, AND A PILOT TEST OPERATION  
FLOWCHART ARE INCLUDED IN THE REPORT.

(AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A000 226 9/2  
ARMY FOREIGN SCIENCE AND TECHNOLOGY CENTER CHARLOTTESVILLE  
VA

A BINARY OUTPUT ELEMENT FOR LOGICAL AND  
SWITCHING DEVICES ON FERROMAGNETIC SINGLE  
CRYSTALS,

(U)

FEB 74 1OP BOYARCHENKOV, M. A. ;  
PALAGASHVILI, YA. SH. ; ROSENTHAL, YU. D. ;  
KHOMERIKI, O. K. ;  
REPT. NO. FSTC-HT-23-1823-73

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: TRANS. OF AVTOMATIKA I  
TELEMEKHANIKA (USSR) N3 P185-187 1973.

DESCRIPTORS: \*MAGNETIC DETECTORS, MAGNETIC DOMAINS,  
MEMORY DEVICES, FERROMAGNETIC MATERIALS, SINGLE  
CRYSTALS, LOGIC DEVICES, BINARY PROCESSORS,  
TRANSLATIONS, USSR

(U)

THE ARTICLE DESCRIBES USES FOR DEVICES, BASED ON  
HALL'S DOMAIN DETECTOR, IN READ-OUT COMPUTER  
TECHNIQUES. THE GALVANOMAGNETIC METHOD IS MOST  
WIDELY USED BECAUSE OF ITS SIMPLICITY AND EASE OF  
ADAPTABILITY. RESULTS OF TESTING SHOWED THAT THESE  
DEVICES GIVE READINGS WHICH ARE NOT AFFECTED BY THE  
FIELD OF DISPLACEMENT, AND CAN BE USED AT HIGH  
TEMPERATURES.

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A000 242 14/5 9/2  
ARMY FOREIGN SCIENCE AND TECHNOLOGY CENTER CHARLOTTESVILLE  
VA

CERTAIN PROBLEMS IN THE DEVELOPMENT OF  
PHOTOCHROMATIC DEVICES FOR INFORMATION  
STORAGE AND REPRODUCTION,

(U)

JUN 74 SP ASRATYAN, A. A. I  
REPT. NO. FSTC-HT-23-0458-74

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: UNEDITED TRANS. OF MONO. AKTUALNYE  
TEKHNICHESKOI KIBERNETIKI, MOSCOW, 1972 P256-257.

DESCRIPTORS: \*PHOTOCHROMISM, \*PHOTOGRAPHIC RECORDING  
MEDIA, \*DATA STORAGE SYSTEMS, ELECTROOPTICS, FIBER  
OPTICS, INFRARED RADIATION, TRANSLATIONS, USSR

(U)

IDENTIFIERS: \*PHOTOCHROMIC STORAGE SYSTEMS

(U)

A DESCRIPTION IS PRESENTED OF A DEVICE FOR  
REPRODUCING AND STORING INFORMATION BY A PHOTOCHROMIC  
METHOD. INFORMATION IS FED INTO THE DEVICE WHERE  
IT UNDERGOES IRRADIATION PROCESSING. AS THE DEVICE  
TURNS, THE REQUIRED INFORMATION IS RECORDED AT ANY  
POINT DEPENDING ON THE RESOLUTION CAPABILITY OF A  
WAVEBEAM STRIP.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A000 294 9/2  
PROBE CONSULTANTS INC PHOENIX ARIZ

THE PILER SYSTEM OF COMPUTER PROGRAM  
TRANSLATION.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,  
SEP 74 151P BARBE,PENNY ;  
REPT. NO. PLR-020  
CONTRACT: N00014-67-C-0472  
PROJ: NR-049-233

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: \*COMPUTER PROGRAMMING, \*TRANSLATORS,  
COMPILERS, INTERPRETERS, MEMORY DEVICES,  
MATHEMATICAL LOGIC (U)  
IDENTIFIERS: \*PILER TRANSLATOR, TRANSLATOR  
ROUTINES (U)

THE AUTOMATIC TRANSLATION OF COMPUTER PROGRAMS FROM  
ONE LANGUAGE TO ANOTHER IS THE ULTIMATE GOAL OF THIS  
RESEARCH PROJECT. THE TRANSLATION OF PROGRAMS IS A  
PRIMARY CONCERN OF USERS ANTICIPATING AN UPGRADING OR  
REPLACEMENT OF COMPUTER HARDWARE CURRENTLY IN USE.  
IT IS ALSO NECESSARY TO ENABLE MANY USERS TO SHARE  
OR PURCHASE APPLICATIONS PROGRAMS. ECONOMIC  
CONSIDERATIONS DICTATE THE GENERAL CHARACTERISTICS OF  
THE TRANSLATOR. BECAUSE OF THE VOLUME OF EXISTING  
PROGRAMS AND THE COST OF MANUAL REPROGRAMMING, THE  
TRANSLATOR SHOULD BE AS NEARLY AUTOMATIC AS POSSIBLE.  
BECAUSE OF THE COMPLEXITY OF SUCH A TRANSLATOR,  
WHICH MEANS HIGH DEVELOPMENTAL COST AND TIME, IT MUST  
BE AS GENERALIZED AS POSSIBLE. THE DESIGN OF THE  
TRANSLATING SYSTEM DEVELOPED THROUGH WORK ON THIS  
PROJECT STRESSES FLEXIBILITY IN THE USE OF THE  
SYSTEM, ALLOWING IT TO FULFILL ALTERNATE GOALS.  
PORTIONS OF THE SYSTEM MAY BE USED TO PROVIDE  
UNIFORM DOCUMENTATION OF PROGRAMS, OR AS DEBUGGING  
AIDS, OR FOR PROGRAM OR COMPILER EVALUATION. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A000 556 9/2  
BOLT BERANEK AND NEWMAN INC CAMBRIDGE MASS

INTERFACE MESSAGE PROCESSORS FOR THE ARPA  
COMPUTER NETWORK.

(U)

DESCRIPTIVE NOTE: QUARTERLY TECHNICAL REPT. NO. 7, 1  
JUL-30 SEP 74.  
OCT 74 63P  
REPT. NO. BBN-2913  
CONTRACT: F08606-73-C-0027  
PROJ: AF-2351

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: \*DATA PROCESSING TERMINALS,  
\*COMMUNICATIONS NETWORKS, INTERFACES, MESSAGE  
PROCESSING, MEMORY DEVICES, SATELLITE COMMUNICATIONS (U)  
IDENTIFIERS: \*ARPA COMPUTER NETWORK, IMP(INTERFACE  
MESSAGE PROCESSORS), \*INTERFACE MESSAGE  
PROCESSORS (U)

THE ARPA COMPUTER NETWORK PROVIDES A  
COMMUNICATION MEDIUM WHICH ALLOWS DISSIMILAR  
COMPUTERS (HOSTS) TO INTERCHANGE INFORMATION.  
EACH HOST IS CONNECTED TO AN INTERFACE  
MESSAGE PROCESSOR (IMP), AND IMPS ARE  
INTERCONNECTED BY LEASED COMMON CARRIER CIRCUITS.  
THERE IS FREQUENTLY NO DIRECT CIRCUIT BETWEEN TWO  
COMMUNICATING HOSTS, AND THE INTERMEDIATE IMPS  
STORE AND FORWARD THE INFORMATION. IMPS REGULARLY  
EXCHANGE INFORMATION WHICH IS USED TO ADAPT ROUTING  
TO CHANGING NETWORK CONDITIONS. IMPS ALSO REPORT A  
VARIETY OF PARAMETERS TO A NETWORK CONTROL  
CENTER, WHICH COORDINATES DIAGNOSIS AND REPAIR OF  
MALFUNCTIONS. (MODIFIED AUTHOR ABSTRACT) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A001 008 9/2 17/2  
WHARTON SCHOOL OF FINANCE AND COMMERCE PHILADELPHIA PA  
DEPT OF DECISION SCIENCES (MANAGEMENT)

OPTIMAL PROGRAM AND DATA LOCATIONS IN  
COMPUTER NETWORKS,

(U)

74 23P MORGAN, HOWARD LEE LEVIN,  
KATRIEL DAN ;  
REPT. NO. 74-10-01  
CONTRACT: N00014-67-A-0216-07

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: \*COMMUNICATIONS NETWORKS, \*COMPUTER  
PROGRAMS, \*DATA STORAGE SYSTEMS, ALLOCATIONS,  
NETWORK FLOWS, LINEAR PROGRAMMING, OPTIMIZATION  
IDENTIFIERS: \*COMPUTER NETWORKS, \*FILE LOCATION  
MODELS

(U)

(U)

AN OPTIMIZATION PROCEDURE FOR THE ALLOCATION OF  
PROGRAM AND DATA FILES IN A COMPUTER NETWORK IS  
PRESENTED. THIS ALGORITHM TAKES INTO ACCOUNT THE  
DEPENDENCIES BETWEEN FILES AND PROGRAMS SUCH AS OCCUR  
IN REAL HETEROGENEOUS COMPUTER NETWORKS. INSIGHTS  
INTO WHETHER OR NOT TO CONVERT PROGRAMS FROM ONE  
COMPUTER TO ANOTHER CAN ALSO BE GAINED FROM THE  
MODEL. A SEARCH PROCEDURE FOR THE FILE LOCATION  
PROBLEM IS DESCRIBED, ALONG WITH AN EXAMPLE AND A  
POSSIBLE APPLICATION OF THE MODEL.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A001 009 9/2 17/2  
WHARTON SCHOOL OF FINANCE AND COMMERCE PHILADELPHIA PA  
DEPT OF DECISION SCIENCES (MANAGEMENT)

ORGANIZING DISTRIBUTED DATA BASES IN  
COMPUTER NETWORKS.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,  
SEP 74 229P LEVIN,KATRIEL DAN ;  
REPT. NO. 74-09-01  
CONTRACT: N00014-67-A-0216-0007  
PROJ: NR-049-272

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: \*COMMUNICATIONS NETWORKS, \*DATA STORAGE  
SYSTEMS, \*COMPUTER PROGRAMMING, TIME SHARING,  
ALLOCATIONS, MATHEMATICAL PROGRAMMING, NETWORK  
FLOWS, MATHEMATICAL MODELS, THESES

(U)

IDENTIFIERS: ARPA COMPUTER NETWORK, \*COMPUTER  
NETWORKS, \*FILE LOCATION MODELS

(U)

THIS RESEARCH ADDRESSED THE FILE LOCATION PROBLEM  
FOR BOTH PROGRAM AND DATA SHARING. IN PARTICULAR,  
DEPENDENCIES BETWEEN PROGRAMS AND DATA FILES HAVE  
BEEN CONSIDERED, AS WELL AS THEIR IMPACT ON THE  
OPTIMAL DISTRIBUTION OF FILES IN THE NETWORK.

HAVING REVIEWED EXISTING FILE LOCATION MODELS, A  
DISTINCTION BETWEEN DATA SHARING AND PROGRAM AND DATA  
SHARING WAS ESTABLISHED. SUBSEQUENTLY, THE  
PROBLEMS OF CREATING AND OPERATING DISTRIBUTED DATA  
BASES WERE CONSIDERED WITH BRIEF EXEMPLARY SOLUTIONS  
FOR THESE PROBLEMS BEING OFFERED. A THREE  
DIMENSIONAL PARTITIONING OF THE FILE LOCATION PROBLEM  
WAS EMPLOYED AS THE FRAMEWORK FOR THE MAIN BODY OF

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A001 058 9/5 9/2 20/12  
MASSACHUSETTS INST OF TECH LEXINGTON LINCOLN LAB

SURFACE STATE MEMORY IN SURFACE  
ACOUSTOELECTRIC CORRELATOR.

(U)

DESCRIPTIVE NOTE: JOURNAL ARTICLE,  
APR 74 4P BERS, ABRAHAM ; CAFARELLA, JOHN  
H. ;

REPT. NO. JA-4377  
CONTRACT: F19628-73-C-0002  
PROJ: DA-7-X-263304-D-215  
MONITOR: ESD TR-74-277

UNCLASSIFIED REPORT

AVAILABILITY: PUB. IN APPLIED PHYSICS LETTERS,  
V25 N3 P133-135, 1 AUG 74.

SUPPLEMENTARY NOTE:

DESCRIPTORS: \*MEMORY DEVICES, \*CORRELATORS,  
\*SURFACE WAVES, TRAPS, ACOUSTIC SIGNALS,  
SEMICONDUCTORS, SURFACE PROPERTIES, PROPAGATION,  
TRANSDUCERS

(U)

IDENTIFIERS: \*SURFACE ACOUSTOELECTRIC CORRELATORS,  
\*SURFACE STATE MEMORY, \*ACOUSTIC SURFACE WAVE  
DEVICES

(U)

WE SHOW THAT SURFACE ACOUSTIC SIGNALS CAN BE STORED  
IN AND READ FROM ELECTRON TRAPS AT THE SURFACE OF A  
SEMICONDUCTOR THAT IS ADJACENT TO THE PIEZOELECTRIC  
ON WHICH THE SURFACE WAVE PROPAGATES. THE OBSERVED  
MEMORY ACTION IS EXPLAINED BY THE LARGE-SIGNAL  
DYNAMICS OF THE CHARGING AND DISCHARGING OF THE TRAPS  
NEAR A SLIGHTLY DEPLETED SURFACE. THE STORAGE OF  
THE SIGNAL IS ACCOMPLISHED BY CREATING A ZERO-  
FREQUENCY K PATTERN WHICH FILLS THE TRAPS. THE  
READING OF THE SIGNAL CAN BE DONE BY EITHER  
CORRELATION OR CONVOLUTION WITH ANOTHER SURFACE  
ACOUSTIC SIGNAL. THIS CORRELATION DEVICE WITH  
INTERNAL MEMORY DOES NOT REQUIRE PRECISE SIGNAL  
TIMING, OPERATES WITH ALL SIGNALS AT THE SAME  
FREQUENCY, AND DOES NOT REQUIRE EXTERNAL TIME  
INVERSION OF THE REFERENCE SIGNAL. (AUTHOR)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A001 182 9/2  
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

FINDING MISTAKES IN THE OPERATION OF THE  
ADDRESS TRACK OF A DIGITAL COMPUTER WITH  
ONE-LEVEL PAGE MEMORY ORGANIZATION.

(U)

OCT 74 15P METESHKIN, A. A. IRYABUKHA,  
N. D. TOLSTOKHATKO, V. A. ;  
REPT. NO. FTD-HT-23-1776-74  
PROJ: FTD-T74-05-12

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. OF PRIBORY I SISTEMY  
AVTOMATIKI (USSR) N25 P129-135 1973, BY CAROL S.  
NACK.

DESCRIPTORS: \*MEMORY DEVICES, LOGIC DEVICES,  
TRANSLATIONS, USSR

(U)

IDENTIFIERS: PAGING, \*COMPUTER STORAGE  
MANAGEMENT

(U)

THE CHARACTERISTIC FEATURES OF THE ORGANIZATION OF  
THE COMPUTATIONAL PROCESS IN CONTEMPORARY TSVM'S  
ARE THE DYNAMIC MEMORY DISTRIBUTIONS AND MULTIPROGRAM  
MODE OF OPERATION, WHICH, AS A RULE, ASSUME PAGE  
MEMORY ORGANIZATION; THE PLACEMENT OF THE PROGRAM FOR  
THE SOLVED PROBLEM IN PAGES OF THE OPERATIVE MEMORY  
THAT ARE FREE AT A GIVEN POINT IN TIME; AND THE  
PROTECTION OF THE PROGRAM FROM THEIR MUTUAL  
INFLUENCE. THE PRESENT WORK EXAMINES ONE-LEVEL  
PAGE MEMORY IN WHICH THE ENTIRE MEMORY OF THE TSVM  
IS DIVIDED INTO SEGMENTS OF EQUAL DIMENSIONS -  
PHYSICAL PAGES, AND THE PROGRAM - INTO SEGMENTS OF  
THE SAME LENGTH - MATHEMATICAL PAGES.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A001 953 9/2  
PRINCETON UNIV N J DEPT OF ELECTRICAL ENGINEERING

A NEW APPROACH TO THE REALIZATION OF  
NONRECURSIVE DIGITAL FILTERS.

(U)

MAR 73 1OP PELED, ABRAHAM ; LIU, BEDE ;  
CONTRACT: AF-AFOSR-2101-71  
PROJ: AF-9749  
TASK: 974906  
MONITOR: AFOSR TR-74-1773

UNCLASSIFIED REPORT

AVAILABILITY: PUB. IN IEEE TRANSACTIONS ON AUDIO  
AND ELECTROACOUSTICS, VAU-21 N6 P477-484 DEC 73.  
SUPPLEMENTARY NOTE:

DESCRIPTORS: \*DIGITAL FILTERS, \*RECURSIVE FILTERS,  
\*DATA STORAGE SYSTEMS, DELTA MODULATION, READ ONLY  
MEMORIES, ANALYSIS OF VARIANCE, COMPUTERIZED  
SIMULATION, ANALOG SIMULATION, ERRORS, SIGNAL TO  
NOISE RATIO

(U)

IDENTIFIERS: NONRECURSIVE DIGITAL FILTERS

(U)

A NEW REALIZATION OF NONRECURSIVE DIGITAL FILTERS  
THAT ARE USED TO OPERATE ON ANALOG SIGNALS IS  
PROPOSED. THIS REALIZATION REQUIRES NO  
MULTIPLICATIONS, AND EXPLOITS THE RELATIVE SIMPLICITY  
OF DELTA MODULATION AS A MEANS FOR ANALOG TO DIGITAL  
CONVERSION. THIS REALIZATION ALSO PERMITS A  
MECHANIZATION AS A VERY FAST DIGITAL FILTER, USING  
READ ONLY MEMORY (ROM). AN EVALUATION OF THIS  
REALIZATION IN TERMS OF COMPUTATION TIME STORAGE  
REQUIREMENTS AND MEAN-SQUARED ERROR IS PRESENTED.  
THESE CHARACTERISTICS ARE COMPARED WITH THEIR  
COUNTERPARTS FOR EXISTING REALIZATION METHODS OF  
NONRECURSIVE DIGITAL FILTERS. COMPUTER SIMULATION  
RESULTS THAT TEND TO CONFIRM THE THEORETICAL RESULTS  
OF THE ERROR ANALYSIS ARE INCLUDED. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A001 994 9/2  
RAND CORP SANTA MONICA CALIF

CONTROLLED TESTS FOR PERFORMANCE EVALUATION.

(U)

JUN 73 12P LOCKETT,J. A. ;WHITE,A.  
R. ;  
REPT. NO. P-5028

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PRESENTED AT AEC SCIENTIFIC COMPUTER INFORMATION EXCHANGE MEETING ON 3-4 MAY 73.

DESCRIPTORS: \*CENTRAL PROCESSING UNITS, MEMORY DEVICES, ON LINE SYSTEMS, PERFORMANCE (U)

IDENTIFIERS: COMPUMETRICS, IBM 360/65 COMPUTERS, PERFORMANCE EVALUATION (U)

HARDWARE CONFIGURATION OF A COMPUTER SYSTEM MUST BE ACCCOMPANIED BY EVALUATION OF ITS EFFECTS ON EACH CATEGORY OF USERS TO ENSURE GOOD PERFORMANCE.

COMBINED ON-LINE/BATCH LOADS POSE A PROBLEM SINCE SEVERAL MEASURES MUST BE EMPLOYED. ACCOUNTING DATA, ARTIFICIAL STIMULATION, PROPER EXPERIMENTAL DESIGN AND ADEQUATE PLANNING CAN AID ANALYSTS DERIVE QUANTITATIVE, PROVABLE CONCLUSIONS IN THIS DIFFICULT LOAD ENVIRONMENT. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A002 083 9/2  
COMPUTER CORP OF AMERICA CAMBRIDGE MASS

DATA COMPUTER PROJECT TECHNICAL REPORT. (U)

DESCRIPTIVE NOTE: FINAL REPT. 1 AUG 73-28 FEB 74.  
FEB 74 101P

CONTRACT: DAHC04-71-C-0011, ARPA ORDER-1731

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: \*DATA STORAGE SYSTEMS, MEMORY DEVICES,  
COMMUNICATIONS NETWORKS, INFORMATION RETRIEVAL,  
COMPUTER PROGRAMMING, PROGRAMMING LANGUAGES (U)  
IDENTIFIERS: \*DATA COMPUTER PROJECT, COMPUTER  
NETWORKS, ARPA COMPUTER NETWORK (U)

THE DATA COMPUTER SYSTEM IS BEING DESIGNED AS A  
LARGE-SCALE DATA STORAGE UTILITY TO BE ACCESSED FROM  
REMOTE COMPUTERS ON THE ARPANET AND, POTENTIALLY,  
ON OTHER NETWORKS. THE DEVELOPMENT IS PHASED, WITH  
EACH SUCCESSIVE RELEASE OF THE SYSTEM OFFERING  
INCREASED CAPABILITIES TO USERS. DURING THE  
PRESENT REPORTING PERIOD, THE SECOND RELEASE OF THE  
SYSTEM BECAME OPERATIONAL. THIS RELEASE, WHILE  
STILL PRIMITIVE IN MANY RESPECTS, IS BEGINNING TO  
PROVIDE EXPERIENCE WITH ACTUAL APPLICATIONS AND USER  
PROGRAMS. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A002 189 9/2  
RAND CORP SANTA MONICA CALIF

COMPUTERS AND SOCIETY: THE TECHNOLOGICAL  
SETTING, (U)

OCT 73 34P WARE,WILLIS H. I  
REPT. NO. P-5094

UNCLASSIFIED REPORT

DESCRIPTORS: \*COMPUTER LOGIC, \*MEMORY DEVICES,  
COMPUTATIONS, FORECASTING, LOGIC CIRCUITS,  
TECHNOLOGY, COST ANALYSIS (U)

IDENTIFIERS: LOGIC DESIGN, COMPUTER STORAGE  
MANAGEMENT, LARGE SCALE INTEGRATED CIRCUITS (U)

THIS PAPER IS INTENDED TO GIVE ONLY IMPRESSIONS OF  
WHERE COMPUTING TECHNOLOGY IS GOING AND TO GIVE A  
FLAVOR OF WHAT IT CAN MEAN TO SOCIETY, TO VARIOUS  
PROFESSIONS AND TO THE INDIVIDUAL. IT WILL  
CONCENTRATE ON TWO ASPECTS: THE SO-CALLED LOGIC  
TECHNOLOGY BECAUSE IT IS AN INDICATOR OF HOW FAST A  
COMPUTER CAN OPERATE AND IS THEREFORE AN APPROXIMATE  
MEASURE OF THE GROSS COMPUTING HORSEPOWER THAT CAN BE  
BUILT; AND FILE OR STORAGE TECHNOLOGY BECAUSE IT  
DETERMINES HOW MUCH DATA A COMPUTER CAN HAVE DIRECT  
AND CONVENIENT ACCESS TO. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A002 481 9/2 17/2  
BOLT BERANEK AND NEWMAN INC CAMBRIDGE MASS

TERMINAL INTERFACE MESSAGE PROCESSOR. THE  
BBN TIP HARDWARE MANUAL. (U)

NOV 74 106P  
REPT. NO. BBN-2184  
CONTRACT: DAHC15-69-C-0179, F08606-73-C-0027

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SUPERSEDES AD-740 798.

DESCRIPTORS: \*COMMUNICATIONS NETWORKS, \*DATA  
PROCESSING TERMINALS, \*MESSAGE PROCESSING,  
INTERFACES, MODEMS, MEMORY DEVICES, TIME  
SHARING (U)

IDENTIFIERS: TIP(TERMINAL INTERFACE  
PROCESSOR), \*TERMINAL INTERFACE PROCESSOR,  
\*ARPA COMPUTER NETWORK, \*COMPUTER NETWORKS (U)

THE BBN TERMINAL INTERFACE MESSAGE  
PROCESSOR (TIP) PROVIDES A MEANS FOR CONNECTING  
UP TO 63 TERMINAL DEVICES TO THE ARPA NETWORK.  
THE TERMINAL INTERFACE SPECIFICATION CONFORMS TO  
THE EIA STANDARD RS232C, WHICH PERMITS DIRECT  
CONNECTION TO MOST DATA MODEMS. IN ADDITION TO  
FULL DUPLEX, SERIAL DATA TRANSMISSION, EACH OF THE 64  
PORTS PROVIDES 4 PROGRAM-SETTABLE CONTROL LINES AND  
MONITORS 6 EXTERNAL STATUS LINES; THESE LINES ARE  
USEFUL IN DEALING WITH MODEMS OR OTHER COMPATIBLE  
I/O DEVICES. DATA FORMAT IS TELETYPE  
COMPATIBLE, THAT IS, CHARACTER ORIENTED WITH START  
AND STOP BITS. THE TIP HANDLES ALL ROUTINE  
OPERATIONS OF TIMING AND SEQUENCING. ALL LINE  
PARAMETERS, SUCH AS SPEED AND CHARACTER SIZE, ARE  
PROGRAM SETTABLE. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A002 694 9/2  
GENERAL ELECTRIC CORPORATE RESEARCH AND DEVELOPMENT  
SCHENECTADY N Y

DESIGN, FABRICATION, AND EVALUATION OF AN  
ELECTRON BEAM ADDRESSABLE HIGH INFORMATION  
DENSITY MEMORY TUBE. (U)

DESCRIPTIVE NOTE: REPT. NO. 8 (FINAL), 1 FEB 72-30  
APR 74.

OCT 74 104P LEMMOND,CHARLES Q. HUGHES,  
WILLIAM C. POSSIN,GEORGE E. WILSON,RONALD  
H. FISHER,JAMES K.  
REPT. NO. GE-SRD-74-117  
CONTRACT: DAAB07-72-C-0098  
PROJ: DA-1-H-631024-D-252  
TASK: 1-H-631024-D-25203  
MONITOR: ECOM 0098-72-F

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: \*MEMORY DEVICES, \*STORAGE TUBES,  
\*RANDOM ACCESS COMPUTER STORAGE, ELECTRON OPTICS,  
WAVEFORMS, FABRICATION, PERFORMANCE (U)

IDENTIFIERS: DESIGN (U)

DURING THIS CONTRACT TWO DIFFERENT ELECTRON BEAM  
MEMORY TUBE DESIGNS WERE CONSTRUCTED. TUBES OF THE  
PHASE I AND PHASE II DESIGNS WERE  
SUCCESSFULLY OPERATED IN A DIGITAL MEMORY SYSTEM.  
TUBE OPERATION AT A 10 MBIT RATE WAS THE ONLY  
CONTRACT GOAL NOT DEMONSTRATED. ELECTRONIC CIRCUIT  
TEST EQUIPMENT DESIGN LIMITED WRITE/READ RATES TO 5  
MBITS/SEC. WITH THE DISTRIBUTION OF THIS REPORT,  
AND THE DELIVERY OF ONE PHASE II BEAMOS TUBE TO  
THE U.S. ARMY ELECTRONICS COMMAND, THE  
CONTRACT WILL BE COMPLETE. (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A002 810 9/2  
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

EXCHANGE CIRCUITS BETWEEN BRANCHES OF  
PARALLEL ALGORITHMS.

(U)

DEC 74 12P KOSAREV, YU. G. I  
REPT. NO. FTD-HT-23-249-75  
PROJ: FTD-T74-05-12

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. OF VYCHISLITELNYE  
SISTEMY (USSR) N51 P70-75 1972, BY DALE A. BOSTAD.

DESCRIPTORS: \*PARALLEL PROCESSORS, \*LOGIC CIRCUITS,  
COMPUTATIONS, TRANSLATIONS, USSR (U)

EXCHANGE CIRCUITS BETWEEN BRANCHES OF PARALLEL  
ALGORITHMS--TRANSLATION.

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A002 835 17/2 9/2  
NORTH ELECTRIC CO GALION OHIO GOVERNMENT PRODUCTS DIV

COMMUNICATIONS PROCESSOR SYSTEM (CPS)  
MODELING APPROACH.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT. OCT 73-AUG 74,  
NOV 74 59P MONROE, MARVIN;  
CONTRACT: F30602-73-C-0314  
MONITOR: RADC TR-74-290

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: \*COMMUNICATION EQUIPMENT, \*DATA  
PROCESSING, SIGNAL PROCESSING, MESSAGE PROCESSING,  
MEMORY DEVICES, TIME SHARING, SWITCHING CIRCUITS,  
MATHEMATICAL MODELS

(U)

IDENTIFIERS: COMMUNICATIONS PROCESSOR SYSTEM

(U)

THE PURPOSE OF THE COMMUNICATIONS PROCESSOR  
SYSTEM STUDY IS TO DEVELOP A FAMILY OF COMMON  
COMPUTER PROCESSOR MODULES SUITED TO FUTURE MILITARY  
REQUIREMENTS OF MULTI-PURPOSE SWITCHING, INCLUDING  
DATA AND VOICE. ONE TASK IN THIS STUDY IS TO  
VERIFY THE DESIGN OF A PROCESSOR BY COMPUTER  
MODELING. THIS REPORT PRESENTS A DISCUSSION OF THE  
REQUIREMENTS OF AN ADEQUATE MODEL, DESCRIBES THE  
TECHNIQUES CHOSEN TO FULFILL THE STUDY OBJECTIVES,  
AND STATES THE PLANS REGARDING THE EXTENT TO WHICH  
THESE TECHNIQUES WILL BE APPLIED DURING THIS  
STUDY.

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A002 849 20/6 14/5 9/2  
HARRIS CORP MELBOURNE FLA ELECTRONIC SYSTEMS DIV

REAL TIME HOLOGRAPHIC RECORDING  
MATERIALS.

(U)

DESCRIPTIVE NOTE: FINAL REPT. 1 OCT 73-30 JUN 74,  
NOV 74 290P ZECH,R. G. RALSTON,LYNDA  
M. ISHARECK,M. W.  
CONTRACT: F30602-74-C-0030  
MONITOR: RADC TR-74-287

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: \*DATA STORAGE SYSTEMS, \*OPTICAL  
MATERIALS, \*MICROFILM, HOLOGRAPHY, OPTICAL  
EQUIPMENT, PHOTOGRAPHIC RECORDING SYSTEMS,  
PHOTOGRAPHIC RECORDING MEDIA, OPTICAL PROPERTIES,  
PERFORMANCE(ENGINEERING), PHOTOGRAPHIC FILM (U)  
IDENTIFIERS: \*HOLOGRAPHIC INFORMATION STORAGE,  
\*OPTICAL DATA PROCESSING (U)

A NUMBER OF HIGH-QUALITY, DRY-WORKING RECORDING  
MATERIALS WERE EVALUATED TO DETERMINE THEIR  
SUITABILITY FOR HOLOGRAPHIC DATA STORAGE AND OPTICAL  
DATA PROCESSING APPLICATIONS. SENSITOMETRIC,  
HOLOGRAPHIC, AND SYSTEMS DATA WERE GENERATED. WITH  
THE RADC-SPONSORED HRMR SYSTEM A FRAME OF  
REFERENCE, SEVERAL FILM/SYSTEMS STUDIES WERE  
COMPLETED THAT HAVE AN IMPORTANT PRACTICAL IMPACT.  
IN PARTICULAR, THE FEASIBILITY OF MAKING HIGH-  
QUALITY FICHE REPLICATIONS USING STRAIGHTFORWARD  
CONTACT COPYING TECHNIQUES WAS DEMONSTRATED. THE  
OVERALL CONCLUSION OF THE STUDY WAS THAT SOME DRY-  
WORKING RECORDING MATERIALS COULD BECOME SYSTEMS  
QUALIFIED IN THE NEAR-TERM. (U)

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UNCLASSIFIED

/ZOM07

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A002 980 9/2  
NAVAL ORDNANCE LAB WHITE OAK MD

PROGRESS TOWARD THE CROSSTIE MEMORY.  
II.

(U)

DESCRIPTIVE NOTE: ANNUAL REPT. NO. 2,  
OCT 74 43P SCHWEE,L. J. ;IRONS,H.  
R. ANDERSON,W. E. ;SERY,R. S. ;  
SCHARNHORST,K. P. ;  
REPT. NO. NOLTR-74-176  
PROJ: A310-310B/WR02-103, NOL-0824/RR011-02  
TASK: A310-310B/WR02-103-001, NOL-0824/RR011-02-02

UNCLASSIFIED REPORT

DESCRIPTORS: \*THIN FILM STORAGE DEVICES, \*RANDOM  
ACCESS COMPUTER STORAGE, SHIFT REGISTERS,  
MICROCIRCUITS, MAGNETIC DOMAINS, DOMAIN WALLS,  
OPTICAL WAVEGUIDES, KERR MAGNETOOPTICAL EFFECT

(U)

IDENTIFIERS: BORAM(BLOCK ORIENTED RANDOM  
ACCESS MEMORIES), BLOCK ORIENTED RANDOM ACCESS  
MEMORIES, MAGNETIC FILM MEMORIES,  
MAGNETORESISTIVITY, MAGNETIC BUBBLE DOMAINS

(U)

THE CROSSTIE MEMORY IS INTENDED FOR USE AS A BLOCK  
ORIENTED RANDOM ACCESS MEMORY (BORAM) OR FAST  
AUXILIARY MEMORY (FAM). THE ADVANTAGES OF THE  
CROSSTIE MEMORY ARE SPEED, LOW POWER, HIGH BIT  
DENSITY, NONVOLATILITY, A WIDE TEMPERATURE RANGE OF  
OPERATION, LOW COST, AND AVAILABLE TECHNOLOGY. THIS  
REPORT CONTAINS INFORMATION ON WALL PLACEMENT  
TECHNIQUES, DYNAMIC NUCLEATION THRESHOLDS,  
PROPAGATION, MICROCIRCUITRY, DOMAIN WALL OBSERVATION,  
AND DETECTION. MICROCIRCUITRY FOR SHIFTING DATA  
HAS BEEN DEVELOPED AND TESTED FOR 32-BIT EXPERIMENTAL  
SHIFT REGISTERS. THE INFORMATION IS OBSERVED USING  
THE MAGNETOOPTIC KERR EFFECT. DETECTION IS  
CONSIDERED FEASIBLE USING EITHER MAGNETORESISTANCE OR  
GUIDED WAVE OPTICS.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A003 022 9/2 12/1  
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

CONSTRUCTION OF GENERALIZED LOGICAL MODEL OF  
AUTOMATS WITH MEMORY. (U)

NOV 74 18P KAZNACHEEV, V. I. IMURAVYEV,  
N. P.;  
REPT. NO. FTD-HC-23-2870-74

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. OF MONO.  
VYCHISLITELNAYA TEKHNIKA V MASHINOSTROENII, MINSK,  
1970 P23-30.

DESCRIPTORS: \*MEMORY DEVICES, \*MATHEMATICAL LOGIC,  
BOOLEAN ALGEBRA, LOGIC DEVICES, TRANSLATIONS,

USSR (U)

IDENTIFIERS: AUTOMATA THEORY (U)

AN ANALYTICAL METHOD OF CONSTRUCTING A GENERALIZED  
LOGICAL MODEL (M-K) OF POLAR SYNCHRONIC AND  
ASYNCHRONIC AUTOMATS WITH MEMORY IS PRESENTED. THE  
POSSIBILITIES OF USING IT DURING THE CONSTRUCTION OF  
TESTS, PROCEDURES OF CONTROL AND FOR THE DIAGNOSIS OF  
INACCURACIES ARE ALSO EXAMINED. A METHOD OF  
SOLVING THESE PROBLEMS WITH THE HELP OF GENERALIZED  
LOGIC MODEL IS DESCRIBED. (U)

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UNCLASSIFIED

/ZOM07

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A003 253 9/2  
INTEGRATED SYSTEMS SUPPORT INC FALLS CHURCH VA

MULTICOMMAND NETWORKS PROJECTS FOR THE U.S.  
ARMY COMPUTER SYSTEMS COMMAND. VOLUME I.  
SURVEY PLAN FOR SELECTED ARMY DATA  
PROCESSING INSTALLATIONS.

(U)

DESCRIPTIVE NOTE: FINAL REPT.

DEC 74 117P  
CONTRACT: DAAK02-72-D-0529  
PROJ: DA-SX-865803-MY-10  
TASK: SX-865803-MY-1003  
MONITOR: USACSC AT-74-06-VOL-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: \*CENTRAL PROCESSING UNITS, \*DATA  
PROCESSING, ARMY OPERATIONS, ARMY EQUIPMENT, ARMY  
TRAINING, COMPUTER APPLICATIONS, COST ANALYSIS,  
MEMORY DEVICES, LOGISTICS SUPPORT, MANAGEMENT  
INFORMATION SYSTEMS

(U)

IDENTIFIERS: PERFORMANCE EVALUATION

(U)

THE PURPOSE OF THIS THREE-VOLUME REPORT IS TO  
GENERATE MEDIUM AND LONG-RANGE SOLUTIONS TO THE  
PROBLEM OF OVERLOADING DATA PROCESSING INSTALLATIONS  
THAT ARE PROVIDING SERVICES TO THE INSTALLATION  
STAFFS AND OTHER SUPPORTED ACTIVITIES. VOLUME I  
DEFINES THE DATA REQUIRED TO SUPPORT ANALYSIS,  
SIMULATION, AND CONFIGURATION DESIGN. IT PROVIDES  
FOR THE ORGANIZATION, TOOLS, SCHEDULE, AND PROCEDURES  
NECESSARY TO COLLECT, CORRELATE, ANALYZE AND USE THE  
REQUIRED DATA.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZDM07

AD-A003 414 9/2  
MITRE CORP BEDFORD MASS

EXPERIENCES WITH AN OPERATIONAL ASSOCIATIVE  
PROCESSOR. (U)

NOV 74 37P BALDAUF, D. L. ;  
REPT. NO. MTR-2879  
CONTRACT: F19628-73-C-0001  
MONITOR: ESD TR-74-199

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: \*ASSOCIATIVE PROCESSING, \*PARALLEL  
PROCESSING, MEMORY DEVICES, INTERFACES,  
COMPUTATIONS, MATHEMATICAL LOGIC, COMPUTER  
PROGRAMMING, SPACE SURVEILLANCE SYSTEMS (U)  
IDENTIFIERS: STARAN SYSTEM (U)

A SPACE OBJECT POSITION PREDICTION PROGRAM WAS  
IMPLEMENTED ON THE STARAN ASSOCIATIVE ARRAY  
PROCESSOR (API) INSTALLED AT THE ROME AIR  
DEVELOPMENT CENTER (RADC), NEW YORK.  
THIS DOCUMENT OUTLINES THE EXPERIENCE GAINED FROM  
THIS TASK. A SECTION IS DEVOTED TO AN ANALYSIS OF  
THE TIME AND EFFORT REQUIRED TO IMPLEMENT THE  
PROGRAM. EMPHASIS IS GIVEN TO THE PROGRAM DESIGN  
AND ARRAY LAYOUT PHASE. SYSTEMATIC (I.E.,  
INDEPENDENT OF THE SPECIFIC PROGRAM) AND  
APPLICATION-RELATED CAPABILITIES AND LIMITATIONS ARE  
DISCUSSED. AN ANALYSIS OF THE RADCAP SYSTEM FROM  
A USER'S VIEWPOINT IS ALSO PRESENTED. THE LATTER  
PART OF THE PAPER DEALS WITH RECOMMENDATIONS FOR AN  
APPROVED STARAN SYSTEM (HARDWARE AND SOFTWARE)  
AND AN IMPROVED HOST COMPUTER INTERFACE. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A003 715 9/2  
MICHIGAN UNIV ANN ARBOR DEPT OF INDUSTRIAL AND OPERATIONS  
ENGINEERING

A DATA DESCRIPTION LANGUAGE APPROACH TO  
FILE TRANSLATION. (U)

MAR 74 19P MERTEN, ALAN G. ; FRY, JAMES  
P. ;  
REPT. NO. ISDOS-WORKING PAPER-93, DATA TRANS-WORKING  
PAPER-304  
CONTRACT: DCA100-72-C-0019, AF-AFOSR-2219-72  
PROJ: AF-9769  
TASK: 976902  
MONITOR: AFOSR TR-75-0038

UNCLASSIFIED REPORT

DESCRIPTORS: \*DATA STORAGE SYSTEMS, \*TRANSLATORS,  
DATA MANAGEMENT, COMPUTER PROGRAMMING

IDENTIFIERS: \*DATA TRANSLATION (U)

DATA TRANSLATION IS THE PROCESS WHEREBY  
INFORMATION (DATA) STORED BY ONE COMPUTER ON  
FILES IN SOME PARTICULAR STRUCTURE MAY BE TRANSFORMED  
SO THAT THEY COULD BE READ BY ANOTHER COMPUTER  
(POSSIBLY MANUFACTURED BY ANOTHER SUPPLIER, AND  
HENCE, NORMALLY INCOMPATIBLE) ACCORDING TO SOME  
OTHER FILE STRUCTURE. THE OVERALL RESEARCH GOAL IS  
TO DEVELOP A GENERALIZED METHODOLOGY FOR DATA  
TRANSLATION. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A003 737 9/2  
MICHIGAN UNIV ANN ARBOR DEPT OF INDUSTRIAL AND OPERATIONS  
ENGINEERING

ON THE IMPLEMENTATION OF A PHYSICAL DATA  
MODEL FOR TRANSLATION.

(U)

MAY 74 25P FRY, JAMES P. ;  
REPT. NO. DATA TRANS-WORKING PAPER-6-05  
CONTRACT: AF-AFOSR-2219-72  
PROJ: AF-9769  
TASK: 976902  
MONITOR: AFOSR TR-75-0036

UNCLASSIFIED REPORT

DESCRIPTORS: \*DATA STORAGE SYSTEMS, \*TRANSLATORS,  
COMPUTER PROGRAMMING, MATHEMATICAL LOGIC

(U)

IDENTIFIERS: \*DATA TRANSLATION

(U)

THE CENTRAL THESIS OF THIS PAPER IS THE DEVELOPMENT  
OF A PHYSICAL MODEL FOR STORED-DATA. TO THIS END,  
THE PAPER REPORTS ON THE IMPLEMENTATION OF A PHYSICAL  
DATA MODEL FOR THE UNIVERSITY OF MICHIGAN DATA  
TRANSLATOR. FIRST, THE EVOLUTION OF DATA MODELS  
FOR TRANSLATION IS TRACED AND THE RELEVANT LITERATURE  
IS REVIEWED. IN SECTION 3 THE MODEL IS DESCRIBED  
USING A TOP-DOWN METHODOLOGY. THE BASIC DESIGN  
CONSIDERATIONS ARE REVIEWED AND THE IMPLEMENTATION  
DETAILS PRESENTED. THIS SECTION ALSO DESCRIBES THE  
UTILIZATION OF THE MODEL IN THE TRANSLATION PROCESS.  
SECTION 4 CONCLUDES THE PAPER BY PRESENTING SOME  
OBSERVATIONS ON THE IMPLEMENTATION OF PHYSICAL DATA  
MODELS FOR DATA TRANSLATION.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZDM07

AD-A003 987 9/2  
PRINCETON UNIV N J DEPT OF ELECTRICAL ENGINEERING

SOME NEW REALIZATIONS OF DEDICATED HARDWARE  
DIGITAL SIGNAL PROCESSORS.

(U)

DESCRIPTIVE NOTE: INTERIM REPT.  
OCT 74 7P PELED,A. ; LIU,B. ;  
CONTRACT: AF-AFOSR-2101-71, NSF-GK-24187  
PROJ: AF-9749  
TASK: 974906  
MONITOR: AFOSR TR-74-1898

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PREPARED IN COOPERATION WITH IBM  
THOMAS J. WATSON RESEARCH CENTER, YORKTOWN  
HEIGHTS, N.Y. PUB. IN PROCEEDINGS OF IEEE  
ELECTRONICS AND AEROSPACE SYSTEMS CONVENTION  
(EASCON) RECORD, WASHINGTON, D.C., OCT 74, P464-  
468 OCT 74.

DESCRIPTORS: \*SIGNAL PROCESSING, \*DIGITAL FILTERS,  
FOURIER TRANSFORMATION, MEMORY DEVICES,  
SEMICONDUCTOR DEVICES (U)  
IDENTIFIERS: \*FAST FOURIER TRANSFORM,  
SEMICONDUCTOR COMPUTER STORAGE (U)

THE SIGNIFICANT BREAKTHROUGHS IN THE AREA OF  
SEMICONDUCTOR TECHNOLOGY HAVE OPENED UP NEW OPTIONS  
FOR THE IMPLEMENTATION OF DIGITAL SIGNAL PROCESSORS.  
THE AUTHORS SUGGEST SOME NEW HARDWARE REALIZATIONS  
OF SUCH DEDICATED PROCESSORS THAT CAPITALIZE ON THE  
ADVANCES IN SEMICONDUCTOR MEMORY TECHNOLOGY TO  
PRODUCE REALIZATIONS THAT HAVE A SIGNIFICANTLY LOWER  
PACKAGE COUNT AND POWER CONSUMPTION AND ALSO MAKE  
POSSIBLE HIGHER SPEEDS OF OPERATION. THE AUTHORS  
SPECIFICALLY DISCUSS THE REALIZATION OF DIGITAL  
FILTERS AND HIGH SPEED FAST FOURIER  
TRANSFORMERS. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A004 180 9/2  
NAVAL RESEARCH LAB WASHINGTON D C

A FORTRAN SUBROUTINE FOR UNPACKING AND  
PACKING BINARY DATA. (U)

DESCRIPTIVE NOTE: MEMORANDUM REPT.,  
DEC 74 14P PHILLIPS, GARY W.;  
REPT. NO. NRL-MR-2951, NRL-COMPUTER BULL-41  
PROJ: NRL-66H01-48

UNCLASSIFIED REPORT

DESCRIPTORS: \*COMPUTER PROGRAMS, \*DATA STORAGE  
SYSTEMS, DATA PROCESSING, FORTRAN (U)

IDENTIFIERS: PACKING(DATA),  
UNPACKING(DATA) (U)

THIS IS A GENERAL PURPOSE ROUTINE TO UNPACK DATA  
STORED IN CORE IN PACKED BINARY FORMAT OR TO PACK  
BINARY DATA STORED WORD FOR WORD IN AN ARRAY. THE  
DATA MUST BE STORED IN BYTES WHICH ARE A MULTIPLE OF  
THREE BITS IN LENGTH WITH A MINIMUM LENGTH OF 3 BITS  
AND A MAXIMUM OF 48 BITS. IT IS USEFUL FOR  
UNPACKING DATA READ IN PACKED BINARY FORM AND SORTING  
IT INTO AN ARRAY SO AS TO BE CONVENIENT FOR FURTHER  
PROCESSING BY A FORTRAN PROGRAM, OR FOR PREPARING  
DATA FROM AN ARRAY FOR WRITING OUT IN A COMPACT FORM,  
OR POSSIBLY FOR INTERMEDIATE STORAGE OF LARGE ARRAYS  
DURING EXECUTION OF A PROGRAM IN ORDER TO SAVE CORE  
SPACE. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A004 331 9/2 6/4  
CARNEGIE-MELLON UNIV PITTSBURGH PA DEPT OF COMPUTER  
SCIENCE

A MEMORY-PROCESS MODEL OF SYMBOLIC  
ASSIMILATION.

(U)

DESCRIPTIVE NOTE: INTERIM REPT.,  
APR 74 291P MANN, WILLIAM C. I  
CONTRACT: F44620-73-C-0074, DARPA ORDER-2466  
MONITOR: AFOSR TR-75-0132

UNCLASSIFIED REPORT

DESCRIPTORS: \*ASSIMILATION, \*COMPUTER APPLICATIONS,  
\*ARTIFICIAL INTELLIGENCE, PROBLEM SOLVING,  
INFORMATION PROCESSING, MEMORY DEVICES, HEURISTIC  
METHODS, THESES

(U)

IDENTIFIERS: DIRECTED GRAPHS, GRAPH THEORY,  
SLATE SYSTEM, SELF ORGANIZING SYSTEMS, SYMBOLIC  
PROGRAMMING

(U)

THE REPORT DESCRIBES RESEARCH ON PROBLEMS OF USING  
KNOWLEDGE TO MAKE AVAILABLE INFORMATION USEFUL, WHICH  
IS CALLED 'ASSIMILATION' PROBLEMS. THE RESULTING  
THEORY CONTRIBUTES TO PSYCHOLOGY AS A MODEL OF HUMAN  
SHORT TERM MEMORY, AND TO INFORMATION SCIENCE AS AN  
EFFECTIVE COLLECTION OF NEW GENERAL METHODS. THE  
VEHICLE FOR STUDY IS A COMPUTER PROGRAM, CALLED THE  
SLATE SYSTEM, WHICH MANIPULATES KNOWLEDGE AND  
EXPERIENCE REPRESENTED AS LABELED DIRECTED GRAPHS. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A004 382 9/2 8/2  
PRC INFORMATION SCIENCES CO MCLEAN VA

CARTOGRAPHIC DATA BASE HIERARCHY. VOLUME  
I. SYSTEMS ANALYSIS AND DESIGN. (U)

DESCRIPTIVE NOTE: FINAL REPT. JUN 72-AUG 73,  
SEP 74 87P ALVAREZ, DONALD T. & TAYLOR,  
M. LYNN;  
REPT. NO. PRC-R-1690-VOL-1  
CONTRACT: F30602-72-C-0457  
MONITOR: RADC TR-74-228-VOL-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2, AD/A-004  
383.

DESCRIPTORS: \*MAPPING, \*DATA STORAGE SYSTEMS, DATA  
BASES, DATA PROCESSING, SYSTEMS ANALYSIS, COMPUTER  
PROGRAMMING, EXPERIMENTAL DESIGN, INFORMATION

RETRIEVAL (U)

IDENTIFIERS: HIS 635 COMPUTERS, COBOL (U)

THE OBJECTIVE OF THE CARTOGRAPHIC DATA BASE  
HIERARCHY PROJECT WAS TO ANALYZE, DESIGN,  
IMPLEMENT, AND TEST AN EXPERIMENTAL DATA BASE SYSTEM  
WHICH EMPLOYS A HIERARCHICAL ENCODING SCHEME.  
HIGHLIGHTS OF THE IMPLEMENTED SYSTEM INCLUDE THE  
FOLLOWING. DESIGN IS BASED ON A GENERALIZED  
FEATURE CLASSIFICATION SYSTEM WHICH ALLOWS FOR  
DETAILED DESCRIPTION OF CARTOGRAPHIC FEATURES. THE  
CLASSIFICATION SYSTEM IS COMPOSED OF FEATURE CLASSES,  
TYPES, SUB-TYPES, EIGHT SPECIAL DESCRIPTORS, SPECIAL  
NUMERIC, FEATURE NAME, FREE TEXT COMMENT, AND  
REFERENCES TO SOURCE MATERIALS. IMPLEMENTATION,  
FOR EXPERIMENTAL PURPOSES, IS ON THE HONEYWELL 635  
COMPUTER SYSTEM USING INTEGRATED DATA STORE  
(IDS) FOR DATA MANAGEMENT SERVICES, AND IS WRITTEN  
IN THE COBOL LANGUAGE. FUNCTIONAL CAPABILITIES  
INCLUDE LOADING, RETRIEVAL, REMOTE QUERY, DELETION,  
AND MODIFICATION. REMOTE QUERY CAPABILITY ALLOWS A  
USER TO INTERACTIVELY COMMUNICATE WITH THE CDB  
THROUGH A REMOTE TERMINAL FOR PURPOSES OF ACCESSING  
AND RETRIEVING CARTOGRAPHIC INFORMATION.  
HIERARCHICAL DATA STRUCTURE WHICH PROVIDES FOR  
FOUR GEOGRAPHIC SEGMENTATION LEVELS, TWO LEVELS OF  
FEATURE SEGMENTATION, AND TWO LEVELS OF FEATURE  
DESCRIPTION (I.E., SUBJECTIVE AND LOCATIONAL).  
STORAGE OF GEOGRAPHIC COORDINATE STRINGS IN A  
COMPACT INCREMENTAL FORMAT ALLOWING FOR VARIABLE DATA  
RESOLUTIONS. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A004 383 9/2 8/2  
PRC INFORMATION SCIENCES CO MCLEAN VA

CARTOGRAPHIC DATA BASE HIERARCHY. VOLUME  
II. SYSTEM IMPLEMENTATION AND TESTING. (U)

DESCRIPTIVE NOTE: FINAL REPT. JUN 72-AUG 73,  
SEP 74 152P ALVAREZ, DONALD T. & TAYLOR,  
M. LYNN & VIRKLER, GARY W. ;  
REPT. NO. PRC-R-1690-VOL-2  
CONTRACT: F30602-72-C-0457  
MONITOR: RADC TR-74-228-VOL-2

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 1, AD/A-004 382,  
AND VOLUME 3, AD/A-004 384.

DESCRIPTORS: \*MAPPING, \*DATA STORAGE SYSTEMS, DATA  
BASES, DATA PROCESSING, SYSTEMS ANALYSIS, COMPUTER  
PROGRAMMING, EXPERIMENTAL DESIGN, INFORMATION  
RETRIEVAL, MEMORY DEVICES, TEST METHODS (U)

IDENTIFIERS: HIS 635 COMPUTER, COBOL (U)

THE PURPOSE OF FINAL TECHNICAL REPORT,  
VOLUME II, IS TO DESCRIBE THE DATA BASE SYSTEM  
IMPLEMENTED, INCLUDING: DATA HIERARCHY AND RECORD  
STRUCTURE, DATA BASE CONTENTS, HARDWARE SYSTEM USED,  
SOFTWARE MODULES DEVELOPED, DIRECTIONS FOR SYSTEM  
USERS, AND SUMMARY RESULTS OF SYSTEM TESTING. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A004 384 9/2 8/2  
PRC INFORMATION SCIENCES CO MCLEAN VA

CARTOGRAPHIC DATA BASE HIERARCHY. VOLUME  
III. PROGRAM DOCUMENTATION. (U)

DESCRIPTIVE NOTE: FINAL REPT. JUN 72-AUG 73,  
SEP 74 123P ALVAREZ, DONALD T. STAYLOR,  
M. LYNN VIRKLER, GARY W. ;  
REPT. NO. PRC-R-1690-VOL-3  
CONTRACT: F30602-72-C-0457  
MONITOR: RADC TR-74-228-VOL-3

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2, AD/A-004  
383.

DESCRIPTORS: \*MAPPING, \*DATA STORAGE SYSTEMS, DATA  
BASES, DATA PROCESSING, SYSTEMS ANALYSIS, COMPUTER  
PROGRAMMING, EXPERIMENTAL DESIGN, INFORMATION  
RETRIEVAL (U)

IDENTIFIERS: HIS 635 COMPUTERS, COBOL (U)

THE PURPOSE OF FINAL TECHNICAL REPORT,  
VOLUME III, IS TO PRESENT THE EXPERIMENTAL CDB  
SOFTWARE OPERATING ENVIRONMENT AND PROGRAM  
DOCUMENTATION. SECTION II OF THIS VOLUME  
DESCRIBES THE OPERATIONAL ENVIRONMENT OF THE CDB  
SYSTEM INCLUDING THE SOFTWARE CONFIGURATION, COMMON  
DATA AREA FORMATS, AND FILE FORMATS. SECTION III  
PRESENTS THE PROGRAM DESCRIPTIONS. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A004 425 9/2  
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

METHOD OF POSITION INPUT INTO A COMPUTER OF  
INFORMATION ABOUT A MACHINE-BUILDING PART, (U)

DEC 74 24P PODYAKOV, B. A. ;  
REPT. NO. FTD-HC-23-2885-74

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. OF MONO.  
VYCHISLITELNAYA TEKHNIKA V MASHINOSTROENII, MINSK,  
DEC 70 P141-152.

DESCRIPTORS: \*COMPUTER GRAPHICS, CODING,  
INFORMATION PROCESSING, MEMORY DEVICES, LOGIC  
DEVICES, TRANSLATIONS, USSR  
IDENTIFIERS: COMPUTER AIDED DESIGN (U)

METHOD OF POSITION INPUT INTO A COMPUTER OF  
INFORMATION ABOUT A MACHINE-BUILDING PART--  
TRANSLATION.

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZDM07

AD-A005 692 9/2  
CARNEGIE-MELLON UNIV PITTSBURGH PA DEPT OF COMPUTER  
SCIENCE

THE OPTIMAL SELECTION OF SECONDARY INDICES  
FOR FILES.

(U)

DESCRIPTIVE NOTE: INTERIM REPT.,  
NOV 74 19P SCHKOLNICK,MARIO ;  
CONTRACT: F44620-73-C-0074, ARPA ORDER-2466  
MONITOR: AFOSR TR-75-0196

UNCLASSIFIED REPORT

DESCRIPTORS: \*DATA STORAGE SYSTEMS, DATA MANAGEMENT,  
INFORMATION RETRIEVAL, STATISTICAL ANALYSIS,  
MATHEMATICAL LOGIC, ALGORITHMS  
IDENTIFIERS: \*COMPUTER STORAGE MANAGEMENT

(U)  
(U)

THE AUTHOR CONSIDERS THE PROBLEM OF FINDING AN  
OPTIMAL SET OF INDICES FOR A FILE. A GENERAL MODEL  
FOR A FILE IS ASSUMED TOGETHER WITH A PROBABILISTIC  
MODEL OF THE TRANSACTIONS CONDUCTED WITH IT:  
QUERIES, UPDATES, INSERTIONS AND DELETIONS.  
IT IS SHOWN THAT ALL THE INFORMATION ASSUMED FOR  
EACH ATTRIBUTE CAN BE CONDENSED INTO TWO PARAMETERS  
AND THAT PROPERTIES OF THE OPTIMAL SOLUTION CAN BE  
DERIVED FROM THIS CONDENSED INFORMATION. AN  
ALGORITHM TO FIND THE OPTIMAL SET OF INDICES BASED ON  
THESE PROPERTIES IS EXHIBITED.

(U)

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UNCLASSIFIED

/ZDM07

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A006 119

9/2

JOHNS HOPKINS UNIV SILVER SPRING MD APPLIED PHYSICS  
LAB

USE OF A MICROPROCESSOR IN A SUPERVISORY  
CONTROL APPLICATION.

(U)

DESCRIPTIVE NOTE: TECHNICAL MEMO.,

DEC 74 35P BINCK,H. J. ZOUCK,J. H.

;

REPT. NO. APL-TG-1269

CONTRACT: N00017-72-C-4401

UNCLASSIFIED REPORT

DESCRIPTORS: \*CENTRAL PROCESSING UNITS,

\*MICROCOMPUTERS, COMPUTER PROGRAMMING, INTEGRATED  
CIRCUITS, MEMORY DEVICES, LOGIC DEVICES,  
DEBUGGING(COMPUTERS), INTERFACES, CONTROL

SYSTEMS, READ ONLY MEMORIES

(U)

IDENTIFIERS: LARGE SCALE INTEGRATED CIRCUITS

(U)

THIS REPORT DESCRIBES THE SOLUTION OF A PROPULSION  
TEST CONTROL PROBLEM BY IMPLEMENTING SUPERVISORY  
CONTROL WITH AN LSI (LARGE-SCALE INTEGRATION)  
MICROPROCESSOR SYSTEM. A BRIEF DESCRIPTION OF THE  
CONTROL PROBLEM AND THE TEST IS PROVIDED. PRIMARY  
EMPHASIS IS ON THE SPECIFIC SOLUTION CHOSEN USING THE  
MICROPROCESSOR. THE PAPER DISCUSSES PROGRAMMING IN  
THE MICROPROCESSOR, THE TYPE OF MEMORY USED, AND HOW  
THE MEMORY WAS IMPLEMENTED. THE DESIGN GOALS THAT  
LED TO THE FINAL CONFIGURATION ARE ALSO DISCUSSED.  
THE REASONS FOR USING THE LSI MICROPROCESSOR ARE  
PRESENTED, TOGETHER WITH ITS LIMITATIONS AND  
ADVANTAGES. USE OF A MICROPROCESSOR IN THIS  
APPLICATION REDUCED HARDWARE COSTS SIGNIFICANTLY.  
PROGRAMS WERE WRITTEN IN THE MICRO PROCESSOR'S  
ASSEMBLY LANGUAGE, CROSS-ASSEMBLED ON ANOTHER  
COMPUTER, AND THEN BURNED INTO PROGRAMMABLE READ-ONLY  
MEMORIES. HARDWARE THAT AIDED IN THE PROGRAMMING  
AND DEBUGGING IS ALSO DESCRIBED.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A006 649 9/2  
NAVAL RESEARCH LAB WASHINGTON D C

MICROPROGRAMMED BENCHMARKS FOR THE  
MICROPROGRAMMED CONTROL UNIT OF THE AN/UYK-  
17(XB-1)(V) SIGNAL PROCESSING ELEMENT. (U)

DESCRIPTIVE NOTE: INTERIM REPT.,  
JAN 75 154P ELOVITZ,HONEY SUE ;  
REPT. NO. NRL-7832  
PROJ: NRL-B02-06, WF21-241  
TASK: WF21-241-601

UNCLASSIFIED REPORT

DESCRIPTORS: \*MICROPROGRAMMING, \*SIGNAL PROCESSING,  
MEMORY DEVICES, ARITHMETIC UNITS, SHIFT REGISTERS,  
COMPUTATIONS, COMPUTER PROGRAMMING (U)  
IDENTIFIERS: AN/UYK-17(XB-1)(V) (U)

THE AN/UYK-17(XB-1)(V) SIGNAL  
PROCESSING ELEMENT USES A MICROPROGRAMMED  
CONTROL UNIT (MCU) TO CONTROL THE OTHER  
COMPONENTS OF THE SIGNAL PROCESSING ELEMENT, TO  
FORMAT DATA FOR THESE OTHER COMPONENTS, AND TO  
PERFORM SIMPLE ARITHMETIC CALCULATIONS. FOURTEEN  
BENCHMARK PROGRAMS WERE WRITTEN FOR AN EARLY MODEL OF  
THE MCU AND RUN ON A SIMULATOR. AS A RESULT OF  
CODING AND EXECUTING THESE PROGRAMS, SEVERAL CHANGES  
WERE MADE IN THE MCU AND SELECTOR CHANNEL  
CONTROLLER (SCC) DESIGNS. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A006 798 9/2  
AIR FORCE FLIGHT TEST CENTER EDWARDS AFB CALIF

A TRANSPOSITION ALGORITHM FOR DIGITAL DATA  
COMPRESSION KEYS.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,  
SEP 74 21P BERRA,FRED N. ;  
REPT. NO. AFFTC-TD-74-2

UNCLASSIFIED REPORT

DESCRIPTORS: \*DATA STORAGE SYSTEMS, \*DATA  
COMPRESSION, DATA PROCESSING, COMPUTATIONS,

(U)

ALGORITHMS

IDENTIFIERS: DATA KEY TRANSPOSITION

(U)

A KEY TRANSPOSITION ALGORITHM, A PROCEDURE BY WHICH COMPUTER WORDS ARE TRANSFORMED INTO ENTITIES THAT ARE USED TO STORE AND RETRIEVE TABLE INFORMATION WITH GREAT EFFICIENCY, IS USEFUL IN MANY AREAS OF COMPUTER INFORMATION RETRIEVAL. A SPECIFIC KEY TRANSPOSITION ALGORITHM IS PRESENTED WHICH APPLIES TO A SET OF DIGITAL DATA COMPRESSION KEY INTEGERS OVER THE RANGE OF  $1 \leq i \leq k \leq \dots \leq n$ . THIS SET IS NON-CONTINUOUS AND NON-UNIFORM, BUT HAS DEFINABLE SUBSETS (RANGING OVER  $k$  SUB  $i \leq j \leq k$  SUB  $j$ ) WHICH ARE SEQUENTIALLY UNIFORM. THE ALGORITHM OPERATES FROM DENSELY STORED TABLES AND PERFORMS MOST ENTRIES TO OBTAIN TABLE INFORMATION WITH A DIVIDE AND ADD OPERATION. A MINIMUM CONTROLLED SCAN IS USED TO RETRIEVE THE INFORMATION ONLY WHEN A TRANSITION OCCURS BETWEEN ONE SUBRANGE AND ANOTHER. THE NUMBER OF SCANNED KEY INTEGERS IS USUALLY VERY SMALL. SOME TIMING COMPARISONS WITH A LOGARITHMIC SEARCH ARE PRESENTED SHOWING FROM 30 TO 40 PERCENT IMPROVEMENTS DEPENDING ON THE DIGITAL DATA COMPRESSION KEY STRUCTURE DEFINED.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A006 932        8/11        9/2  
COMPUTER CORP OF AMERICA CAMBRIDGE MASS

DATA COMPUTER SUPPORT OF SEISMIC DATA  
ACTIVITY.

(U)

DESCRIPTIVE NOTE: QUARTERLY TECHNICAL REPT. 1 NOV 74-31  
JAN 75,

MAR 75        41P

CONTRACT: MDA903-74-C-00227, DARPA ORDER-2613

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: \*SEISMIC DATA, \*DATA PROCESSING,  
\*DATA STORAGE SYSTEMS, INFORMATION RETRIEVAL,

(U)

COMMUNICATIONS NETWORKS, INTERFACES

IDENTIFIERS: ARPA COMPUTER NETWORK, COMPUTER  
NETWORKS

(U)

(U)

THE PURPOSE OF THE PROJECT IS TO SUPPORT THE  
ARPA-NMRO SEISMIC DATA ACTIVITY BY PROVIDING  
DATA STORAGE AND RETRIEVAL SERVICES. THE ARPANET  
WILL BE USED AS THE COMMUNICATION CHANNEL. AS PART  
OF THE SERVICE, SEISMIC DATA WILL BE (A)  
COLLECTED FROM THE ARPANET; (B) STORED; AND  
(C) MADE AVAILABLE TO COMPUTERS ON THE ARPANET  
IN A CONVENIENT AND TIMELY MANNER. THESE SERVICES  
REPRESENT A SPECIAL APPLICATION OF THE ARPANET  
DATA COMPUTER. THE ACTIVITY ON THE PROJECT TO DATE  
HAS BEEN PRIMARILY IN TWO AREAS: HARDWARE  
ACQUISITION AND COORDINATION WITH THE SEISMIC  
COMMUNITY.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A007 480 9/2  
NAVAL SHIP RESEARCH AND DEVELOPMENT CENTER BETHESDA  
MD

PAKUNPK: A SET OF GENERAL PURPOSE COMPUTER  
ROUTINES TO ACCOMPLISH WORD PACKING AND  
UNPACKING. FOR USE WITH THE CDC FORTRAN FTN  
COMPILER.

(U)

JAN 75 11P GOLDEN, MICHAEL E. ;  
REPT. NO. NSRDC-4586

UNCLASSIFIED REPORT

DESCRIPTORS: \*COMPILERS, COMPUTER PROGRAMMING,  
FORTRAN, MEMORY DEVICES

(U)

IDENTIFIERS: PAKUNPK COMPUTER CODE, CDC 6000  
COMPUTERS

(U)

THE PRECISION AVAILABLE ON A PARTICULAR COMPUTER  
SYSTEM FOR THE STORAGE OF VARIABLE VALUES IS OFTEN  
MORE THAN IS ACTUALLY NEEDED. A SET OF COMPUTER  
ROUTINES, PAKUNPK, HAS BEEN DEVELOPED TO ENABLE THE  
USER TO MAKE THE MOST EFFECTIVE USE OF CORE STORAGE  
BY PACKING MORE THAN ONE DATA VALUE WITHIN A COMPUTER  
WORD.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A007 739 9/2 8/6 8/2  
ARMY ENGINEER TOPOGRAPHIC LABS FORT BELVOIR VA

A SYSTEM FOR TOPOGRAPHIC INQUIRY. NO. 3.  
ALPHANUMERIC SUBSYSTEM DATA BASE  
LISTING.

(U)

DESCRIPTIVE NOTE: FINAL REPT. JUL 70-30 JUN 74,  
MAR 75 134P GUNTHER, ALDEN C. I  
REPT. NO. ETL-0004  
PROJ: DMA-4304

UNCLASSIFIED REPORT

DESCRIPTORS: \*DATA STORAGE SYSTEMS, \*TOPOGRAPHY,  
DATA MANAGEMENT, INFORMATION RETRIEVAL, DATA BASES (U)  
IDENTIFIERS: \*STOPIN SYSTEM (U)

THE SYSTEM FOR TOPOGRAPHIC INQUIRY  
(STOPIN)--ALPHANUMERIC SUBSYSTEM IS AN ONLINE,  
TOPOGRAPHIC DATA SYSTEM DEVELOPED TO DEMONSTRATE THE  
CAPABILITY TO STORE, RETRIEVE, AND DISSEMINATE LARGE  
QUANTITIES OF NON-GRAFIC TOPOGRAPHIC INFORMATION.  
THIS REPORT PRESENTS A COMPLETE LIST OF THE DATA  
ELEMENTS INCLUDED IN THE STOPIN DATA BASE  
STRUCTURE. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A007 759 20/12 9/1  
SYSTEMS RESEARCH LABS INC DAYTON OHIO

SWITCHING AND MEMORY EFFECTS IN PHOSPHORUS-  
ION-IMPLANTED ZNSE DEVICES. (U)

DESCRIPTIVE NOTE: JOURNAL ARTICLE,  
AUG 73 SP SHIN,B. K. ;PARK,Y. S. ;  
CONTRACT: F33615-72-C-1099  
PROJ: AF-7885  
TASK: 788500  
MONITOR: ARL 75-0031

UNCLASSIFIED REPORT  
AVAILABILITY: PUB. IN PROCEEDINGS OF THE IEEE,  
V62 N4 P538-540 APR 74.

DESCRIPTORS: \*SEMICONDUCTORS, \*SEMICONDUCTOR  
DEVICES, SWITCHING, MEMORY DEVICES, ION  
IMPLANTATION, PHOSPHORUS, ZINC SELENIDES, REPRINTS (U)  
IDENTIFIERS: P TYPE SEMICONDUCTORS (U)

SWITCHING AND MEMORY EFFECTS HAVE BEEN OBSERVED IN  
DIODES FABRICATED FROM PHOSPHORUS-IMPLANTED ZNSE.  
THE MATERIALS HAVING A CARRIER CONCENTRATION OF  
ABOUT 10 TO THE 18TH POWER/CU CM WERE IMPLANTED AT 90  
KEV TO AN ION DOSE OF 10 TO THE 16TH POWER/SQ CM.  
THE SWITCHING AND MEMORY PHENOMENA ARE INTERPRETED  
IN TERMS OF FILLING AND EMPTYING OF THE TRAPPING  
CENTERS IN THE IMPLANTED P-TYPE LAYER.  
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A007 776 9/2 5/2  
SYRACUSE UNIV N Y DEPT OF INDUSTRIAL ENGINEERING AND  
OPERATIONS RESEARCH

A DISCRETE SIMULATION MODEL OF THE REVISED  
AFMPC IOC MICROFORM SYSTEM.

(U)

DESCRIPTIVE NOTE: INTERIM TECHNICAL REPT.,  
FEB 75 88P TREHAN,VIJAY ISARGENT,ROBERT  
G.;

CONTRACT: F30602-74-C-0335  
MONITOR: RADC TR-75-23

UNCLASSIFIED REPORT

DESCRIPTORS: \*DATA STORAGE SYSTEMS, \*INFORMATION  
SYSTEMS, MILITARY PERSONNEL, MICROFICHE,  
INFORMATION RETRIEVAL, COMPUTER PROGRAMS,  
COMPUTERIZED SIMULATION

(U)

IDENTIFIERS: SIMSCRIPT 2.5 PROGRAMMING LANGUAGE

(U)

A SIMSCRIPT-II.5 SIMULATION MODEL OF THE  
REVISED AIR FORCE MILITARY PERSONNEL CENTER  
(AFMPC) INITIAL OPERATING CAPABILITY (IOC)  
MICROFORM SYSTEM BEING DEVELOPED BY ROME AIR  
DEVELOPMENT CENTER (RADC) IS DESCRIBED. THIS  
MODEL WILL ALLOW DIFFERENT WORKLOADS AND SYSTEM  
CONFIGURATIONS TO BE ANALYZED FOR SYSTEM DESIGN, FOR  
SCHEDULING OF DIFFERENT WORKLOADS, AND FOR AIDING IN  
THE EVALUATION AND TESTING OF THE ACTUAL SYSTEM ONCE  
IT IS IN OPERATION.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A007 783 9/2 8/2  
HAMILTON STANDARD WINDSOR LOCKS CONN

COLOR DETECTION PROCESSING.

(U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT.,  
FEB 75 61P HUBBARD, RICHARD G.  
CONTRACT: F30602-73-C-0274  
PROJ: AF-5569  
TASK: 556903  
MONITOR: RADC TR-75-28

UNCLASSIFIED REPORT

DESCRIPTORS: \*IMAGE PROCESSING, COLORS, SIGNAL  
PROCESSING, MAPPING, MEMORY DEVICES, DATA  
PROCESSING

(U)

IDENTIFIERS: \*COLOR DISCRIMINATION

(U)

IN THE COMPUTER OPERATION OF CONVERTING RASTER-SCAN  
DATA TO A LINEAL FORMAT FOR THE PURPOSES OF  
CARTOGRAPHIC IMAGE PROCESSING, THE ACCURACY OF THE  
OUTPUT LINEAL DATA, COMPARED TO THE GRAPHIC SOURCE,  
IS INFLUENCED BY THE QUALITY OF THE INPUT RASTER  
DATA. RASTER-SCAN DATA QUALITY IS CHARACTERIZED BY  
THE EXTENT TO WHICH MICROSCALE IMAGE VARIATIONS ARE  
CONVERTED INTO A CONSISTENT, MACROSCALE IMAGE  
REPRESENTATION. THE OBJECTIVE OF THE WORK  
DESCRIBED HEREIN WAS TO DETERMINE THAT THE FLEXIBLE  
CAPABILITY AND FUNCTIONAL CAPACITY OF A COMPUTER-  
CENTERED RASTER SCAN PROCESS WAS A PRACTICAL APPROACH  
WHICH COULD ENHANCE THE RASTER DATA PRODUCT AS AN  
INPUT TO THE LINEAL CONVERSION. THE EFFORT  
INCLUDED THE STUDY AND ANALYSIS OF COLOR  
DISCRIMINATION TECHNIQUES, AND DATA EDITING  
PROCEDURES, APPLICABLE TO COMPUTER USAGE, AS WELL AS  
THE IMPLEMENTATION OF THESE FUNCTIONS IN AN  
EXPERIMENTAL TEST SYSTEM INCLUDING THE AUTOMATIC  
COLOR SEPARATION DEVICE.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A008 012 9/2 8/6 8/2  
ARMY ENGINEER TOPOGRAPHIC LABS FORT BELVOIR VA

A SYSTEM FOR TOPOGRAPHIC INQUIRY NO. 2  
ALPHANUMERIC SUBSYSTEM.

(U)

DESCRIPTIVE NOTE: FINAL REPT. JUL 70-JUL 74,  
MAR 75 103P GUNTHER, ALDEN CORELL ;  
REPT. NO. ETL-0003  
PROJ: DNA-4304

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO REPORT NO. 3, AD-A007  
739.

DESCRIPTORS: \*DATA STORAGE SYSTEMS, \*TOPOGRAPHY,  
INFORMATION SYSTEMS, COMPUTER PROGRAMMING, DATA  
BASES, DATA MANAGEMENT

(U)

IDENTIFIERS: \*STOPIN SYSTEM

(U)

THE SYSTEM FOR TOPOGRAPHIC INQUIRY  
(STOPIN)--ALPHANUMERIC SUBSYSTEM IS AN ON-LINE,  
TOPOGRAPHIC DATA SYSTEM DEVELOPED TO DEMONSTRATE THE  
CAPABILITY TO STORE, RETRIEVE, AND DISSEMINATE LARGE  
QUANTITIES OF NON-GRAFIC TOPOGRAPHIC INFORMATION.  
THIS REPORT DESCRIBES THE ASSUMPTIONS AND DESIGN  
CRITERIA EMPLOYED DURING THE DEVELOPMENT, OUTLINES  
THE SOFTWARE PACKAGE DEVELOPED TO IMPLEMENT THE DATA  
BASE, AND PROVIDES A DESCRIPTION OF EACH DATA FIELD  
INCLUDING THE ALLOWABLE REQUESTS FOR  
INFORMATION.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A008 631 9/2  
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

MAGNETIC DISC UNIT.

(U)

MAR 75 6P  
REPT. NO. FTD-HC-23-0981-75

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. OF MECHANIZACE,  
AUTOMATIZACE ADMINISTRATIVY (USSR) N8 P324 1973.

DESCRIPTORS: \*MAGNETIC DISKS, \*MEMORY DEVICES,  
TRANSLATIONS, USSR

(U)

IDENTIFIERS: \*MAGNETIC STORAGE

(U)

MAGNETIC DISC UNIT--TRANSLATION.

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A008 842 9/2  
BOLT BERANEK AND NEWMAN INC CAMBRIDGE MASS

INTERFACE MESSAGE PROCESSORS FOR THE ARPA  
COMPUTER NETWORK.

(U)

DESCRIPTIVE NOTE: QUARTERLY TECHNICAL REPT. NO. 8, 1  
OCT-31 DEC 74.

JAN 75 38P HEART,FRANK E. ;  
REPT. NO. BBN-2988  
CONTRACT: F08606-73-C-0027, ARPA ORDER-2351  
PROJ: AF-2351

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO REPORT DATED OCT 74, AD/  
A-000 556.

DESCRIPTORS: \*COMMUNICATIONS NETWORKS, \*DATA  
PROCESSING TERMINALS, RELIABILITY, MESSAGE  
PROCESSING, COMPUTER PROGRAMMING, REDUNDANCY,  
MULTIPROCESSORS, MEMORY DEVICES

(U)

IDENTIFIERS: \*ARPA COMPUTER NETWORK, IMP(INTERFACE  
MESSAGE PROCESSORS), \*INTERFACE MESSAGE  
PROCESSORS, COMPUTER NETWORKS

(U)

THE ARPA COMPUTER NETWORK IS A PACKET SWITCHING  
STORE-AND-FORWARD COMMUNICATIONS SYSTEM DESIGNED FOR  
USE BY COMPUTERS AND COMPUTER TERMINALS. THIS  
REPORT CONCENTRATES ON THE NEW PLURIAUS IMP  
DESIGN; IN PARTICULAR ON THOSE ASPECTS OF THE DESIGN  
WHICH MAKE A HIGHLY RELIABLE SYSTEM. BOTH THE  
MULTIPROCESSOR HARDWARE AND THE SOFTWARE WHICH  
OPERATES ON IT INCLUDE A LARGE NUMBER OF FEATURES  
DESIGNED TO INSURE RELIABLE OPERATION; THE DESIGN IS  
APPLICABLE TO A MUCH BROADER SET OF USES THAN THE  
IMP ALGORITHM.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A008 877 9/2  
COMPUTER CORP OF AMERICA CAMBRIDGE MASS

DATA COMPUTER PROJECT.

(U)

DESCRIPTIVE NOTE: SEMI-ANNUAL TECHNICAL REPT. 1 JUL 74-  
31 DEC 74.

DEC 74 110P

CONTRACT: MDA903-74-C-0225, ARPA ORDER-2687

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO REPORT DATED JUN 74, AD-  
787 677.

DESCRIPTORS: \*DATA STORAGE SYSTEMS, \*COMMUNICATIONS  
NETWORKS, TIME SHARING, DATA PROCESSING, COMPUTER  
PROGRAMMING, PROGRAMMING LANGUAGES, INSTRUCTION  
MANUALS, ON LINE SYSTEMS

(U)

IDENTIFIERS: \*DATA COMPUTER PROJECT, \*COMPUTER  
NETWORKS, ARPA COMPUTER NETWORK

(U)

THE DATA COMPUTER SYSTEM IS BEING DESIGNED AS A  
LARGE-SCALE DATA STORAGE UTILITY TO BE ACCESSED FROM  
REMOTE COMPUTERS ON THE ARPANET AND, POTENTIALLY,  
ON OTHER NETWORKS. THE DEVELOPMENT IS PHASED, WITH  
EACH SUCCESSIVE RELEASE OF THE SYSTEM OFFERING  
INCREASED CAPABILITIES TO USERS. DURING THE PRESENT  
REPORTING PERIOD, THE THIRD MAJOR RELEASE OF THE  
SYSTEM BECAME OPERATIONAL. THIS RELEASE, WHILE  
STILL PRIMITIVE IN MANY RESPECTS, IS PROVIDING  
SERVICE FOR A WIDE RANGE OF APPLICATIONS.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A009 218 9/2  
MASSACHUSETTS INST OF TECH CAMBRIDGE PROJECT MAC

PROGRAM RESTRUCTURING FOR VIRTUAL MEMORY  
SYSTEMS. (U)

DESCRIPTIVE NOTE: INTERIM SCIENTIFIC REPT.,  
MAR 75 224P JOHNSON, JERRY W.;  
REPT. NO. MAC-TR-148  
CONTRACT: N00014-70-A-0362-0006

UNCLASSIFIED REPORT

DESCRIPTORS: \*COMPUTER PROGRAMMING, \*MEMORY DEVICES,  
MATHEMATICAL LOGIC, CLUSTERING, COMPUTATIONS,  
ALGORITHMS, THEOREMS (U)  
IDENTIFIERS: \*VIRTUAL MEMORY, \*PAGING, MAC  
PROJECT, MULTIPROGRAMMING, IBM 360 COMPUTERS (U)

THE PROBLEM AREA ADDRESSED IN THIS REPORT IS  
PROGRAM RESTRUCTURING, A METHOD OF REORDERING THE  
RELOCATABLE SECTORS (SUBROUTINE AND DATA MODULES)  
OF A PROGRAM IN ITS ADDRESS SPACE TO INCREASE THE  
LOCALITY OF THE PROGRAM'S REFERENCE BEHAVIOR, THEREBY  
REDUCING THE NUMBER OF PAGE FETCHES REQUIRED FOR ITS  
EXECUTION IN A VIRTUAL MEMORY SYSTEM. THEORETICAL  
UPPER AND LOWER (OPTIMUM) BOUNDS ARE DERIVED FOR  
THE PAGING PERFORMANCE OF PROGRAMS OVER ALL  
PARTITIONS OF RELOCATABLE SECTORS INTO PAGES.  
PROGRAM RESTRUCTURING TECHNIQUES ARE DEVELOPED  
WHICH USE INTERSECTOR REFERENCE MODELS BASED ON  
SECTOR WORKING SETS AND SECTOR STACK DISTANCES.  
THESE INTERSECTOR REFERENCE MODELS IDENTIFY THE  
LOCAL REFERENCE BEHAVIOR, AND CLUSTERING PROCEDURES  
ARE DEVELOPED THAT USE THIS LOCAL REFERENCE BEHAVIOR  
TO REARRANGE SECTORS INTO PAGES SUCH THAT SIGNIFICANT  
IMPROVEMENT IN PAGING PERFORMANCE IS OBTAINED.  
RESULTS OF MEASUREMENTS OF PAGING PERFORMANCE  
OBTAINED IN THE COMPUTER LABORATORY ARE DISCUSSED. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A009 430

9/2

COLLEGE OF WILLIAM AND MARY WILLIAMSBURG VA DEPT OF  
MATHEMATICS

SYSTEM BALANCE ANALYSIS FOR VECTOR  
COMPUTERS.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,  
MAY 75 29P KNIGHT, JOHN C. ; POOLE,  
WILLIAM G. , JR. ; VOIGHT, ROBERT G. ;  
REPT. NO. TR-7  
CONTRACT: N00014-73-A-0374-0001, NGR-47-102-001  
PROJ: NR-044-459

UNCLASSIFIED REPORT

DESCRIPTORS: \*CENTRAL PROCESSING UNITS, \*INPUT  
OUTPUT PROCESSING, ARITHMETIC UNITS, MEMORY DEVICES,

(U)

COMPUTATIONS, ALGORITHMS

IDENTIFIERS: \*VECTOR COMPUTERS

(U)

THE AVAILABILITY OF VECTOR PROCESSORS CAPABLE OF  
SUSTAINING COMPUTING RATES OF (10 TO THE 8TH  
POWER) ARITHMETIC RESULTS PER SECOND HAS RAISED THE  
QUESTION OF WHETHER PERIPHERAL STORAGE DEVICES  
REPRESENTING CURRENT TECHNOLOGY CAN KEEP SUCH  
PROCESSORS SUPPLIED WITH DATA. BY CAREFULLY  
EXAMINING THE SOLUTION OF A LARGE BANDED LINEAR  
SYSTEM ON THESE COMPUTERS IT IS FOUND THAT EVEN UNDER  
IDEAL CONDITIONS THE PROCESSORS WILL FREQUENTLY BE  
WAITING FOR PROBLEM DATA. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A009 833 8/3 9/2  
RHODE ISLAND UNIV KINGSTON GRADUATE SCHOOL OF  
OCEANOGRAPHY

A STORAGE FORMAT FOR CURRENT METER  
DATA.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,  
MAY 75 21P KRAMER, WILLIAM P. ;  
REPT. NO. REF-75-2  
CONTRACT: N00014-68-A-0215-0003  
PROJ: NR-083-165

UNCLASSIFIED REPORT

DESCRIPTORS: \*OCEAN CURRENTS, \*DATA STORAGE SYSTEMS,  
MAGNETIC TAPE, DATA PROCESSING, FLOWMETERS (U)

A RECENTLY ESTABLISHED DATA ARCHIVING GROUP AT  
URI HAS ADOPTED A FORMAT FOR THE STORAGE OF CURRENT  
METER DATA. THE STORAGE FORMAT CHOSEN SERVES TWO  
PURPOSES. IT IS USED FOR IN-HOUSE DATA STORAGE AND  
PROCESSING AND COPIES ARE SENT TO EXTERNAL DATA  
AGENCIES. EIGHTY CHARACTER CARD IMAGES ARE BLOCKED  
ONTO A NINE TRACK TAPE IN EBCDIC CHARACTER CODE AT  
A PACKING DENSITY OF 800 BITS PER INCH. THE FIRST  
TEN TAPE RECORDS OF EACH FILE CONTAIN HEADER  
INFORMATION (LABEL RECORDS) REVEALING THE STATION  
INFORMATION. WITHIN THESE FIRST TEN TAPE RECORDS  
THE USER IS TOLD THE VARIABLES STORED AND THE FORMAT  
OF THE DATA RECORDS WHICH FOLLOW. (U)

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UNCLASSIFIED

/ZOM07

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A009 887 9/2  
ILLINOIS UNIV URBANA COORDINATED SCIENCE LAB

HIGH DENSITY OPTICAL MEMORY.

(U)

DESCRIPTIVE NOTE: QUARTERLY PROGRESS REPT. OCT-DEC 74.  
APR 75 4P

CONTRACT: N00014-67-A-0305-0015

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: \*MEMORY DEVICES, CRYSTALS, ELECTRON BEAMS, THIN FILMS, ALUMINUM, POTASSIUM CHLORIDE, COLORING, INTERFACES

(U)

IDENTIFIERS: \*OPTICAL CRYSTAL MEMORIES

(U)

DURING THIS PERIOD, THE PROBLEM OF PRODUCING UNIFORMLY COLORED CRYSTALS USING ELECTRON BOMBARDMENT HAS BEEN INVESTIGATED. COMPUTER INTERFACE HARDWARE HAS BEEN COMPLETED AND PRELIMINARY PROGRAMS HAVE BEEN WRITTEN FOR COMPUTER TESTING OF THE MEMORY. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A010 002 9/1 20/12 9/2  
CLARKSON COLL OF TECHNOLOGY POTSDAM N Y

CTRUMP: ITS DEVELOPMENT AND USE IN SOLUTION  
OF PROBLEMS OF CONDUCTION HEAT FLOW IN  
SOLID STATE DEVICES.

(U)

DESCRIPTIVE NOTE: PHASE REPT.,  
MAR 75 154P BASILE,ROBERT L. ;DOMINGOS,  
HENRY ;  
CONTRACT: F30602-72-C-0463  
MONITOR: RADC TR-75-74

UNCLASSIFIED REPORT

DESCRIPTORS: \*SEMICONDUCTOR DEVICES,  
\*CONDUCTION(HEAT TRANSFER), \*COMPUTER  
PROGRAMMING, SOLID STATE PHYSICS, THIN FILMS,  
GALLIUM ARSENIDES, CARBON RESISTORS, COMPUTATIONS,  
FORTRAN, GUNN DIODES

(U)

IDENTIFIERS: IBM 360/44 COMPUTERS, CTRUMP COMPUTER  
PROGRAM

(U)

THE TRUMP PROGRAM, DEVELOPED BY ARTHUR  
EDWARDS OF THE LAWRENCE RADIATION LABORATORY,  
HAS BEEN ADAPTED FOR USE ON THE IBM 360/44, UNDER  
THE NAME CTRUMP. MODIFICATIONS WERE MADE TO  
ENABLE CALCULATIONS OF THREE-DIMENSIONAL HEAT FLOW IN  
SOLID STATE DEVICES, AS A RESULT OF INTERNAL  
CONDUCTION AND INTERNAL HEAT GENERATION WITH CONSTANT  
BOUNDARY CONDITIONS. CTRUMP WAS THEN USED TO  
CALCULATE TEMPERATURE RISE IN THIN FILM AND CARBON  
RESISTOR MODELS, AS WELL AS IN A MODEL OF A GALLIUM  
ARSENIDE GUNN EFFECT DIODE. AN OPERATING MANUAL  
FOR CTRUMP IS INCLUDED AS AN APPENDIX.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A010 235 8/11 9/2  
COMPUTER CORP OF AMERICA CAMBRIDGE MASS

DATA COMPUTER SUPPORT OF SEISMIC DATA  
ACTIVITY.

(U)

DESCRIPTIVE NOTE: ANNUAL TECHNICAL REPT. 22 APR-31 DEC  
74.

MAY 75 12P  
CONTRACT: MDA903-74-C-0227, ARPA ORDER-2613

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO REPORT DATED 21 MAR 75,  
AD/A006 932.

DESCRIPTORS: \*SEISMIC DATA, \*DATA STORAGE SYSTEMS,  
INFORMATION RETRIEVAL, COMMUNICATIONS NETWORKS,

(U)

INTERFACES, ON LINE SYSTEMS

IDENTIFIERS: ARPA COMPUTER NETWORK, COMPUTER  
NETWORKS

(U)

THE PURPOSE OF THE PROJECT IS TO SUPPORT THE  
ARPA-NMRO SEISMIC DATA ACTIVITY BY  
PROVIDING DATA STORAGE AND RETRIEVAL SERVICES. THE  
ARPANET WILL BE USED AS THE COMMUNICATION CHANNEL.  
AS PART OF THE SERVICE, SEISMIC DATA WILL BE  
(A) COLLECTED FROM THE ARPANET; (B) STORED;  
AND (C) MADE AVAILABLE TO COMPUTERS ON THE  
ARPANET IN A CONVENIENT AND TIMELY MANNER. THE  
ACTIVITY ON THE PROJECT TO DATE HAS BEEN PRIMARILY IN  
TWO AREAS: HARDWARE ACQUISITION AND COORDINATION  
WITH THE SEISMIC COMMUNITY.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A010 556 8/11 9/2  
COMPUTER CORP OF AMERICA CAMBRIDGE MASS

DATA COMPUTER SUPPORT OF SEISMIC DATA  
ACTIVITY. (U)

DESCRIPTIVE NOTE: QUARTERLY TECHNICAL REPT. 1 FEB-30  
APR 75.

MAY 75 15P  
CONTRACT: MDA903-74-C-0227, ARPA ORDER-2613

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO REPORT DATED 21 MAR 75,  
AD-A006 932.

DESCRIPTORS: \*SEISMIC DATA, \*DATA PROCESSING,  
\*DATA STORAGE SYSTEMS, INFORMATION RETRIEVAL,  
COMMUNICATIONS NETWORKS, INTERFACES (U)

IDENTIFIERS: ARPA COMPUTER NETWORK, COMPUTER  
NETWORKS (U)

THE PURPOSE OF THE PROJECT IS TO SUPPORT THE  
ARPA-NMRO SEISMIC DATA ACTIVITY BY  
PROVIDING DATA STORAGE AND RETRIEVAL SERVICES. (U)

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UNCLASSIFIED

/ZOM07

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A010 590 9/2  
MITRE CORP MCLEAN VA

DESIGN OF A SECURE FILE MANAGEMENT SYSTEM,

(U)

APR 75 31P WHITE, J. C. C. ;  
REPT. NO. MTR-2931  
CONTRACT: F19628-73-C-0001  
PROJ: AF-7070  
MONITOR: ESD TR-75-57

UNCLASSIFIED REPORT

DESCRIPTORS: \*DATA PROCESSING SECURITY, \*DATA  
STORAGE SYSTEMS, MEMORY DEVICES, PROTECTION  
IDENTIFIERS: PDP-11/45 COMPUTERS, \*COMPUTER  
PRIVACY, \*COMPUTER INFORMATION SECURITY, \*FILE  
MANAGEMENT SYSTEMS

(U)

(U)

A FILE MANAGEMENT/OPERATING SYSTEM BASED ON THE  
PDP-11/45 SECURITY KERNEL IS DESCRIBED. THE  
SYSTEM WILL ALLOW COMPLETE SHARING OF FILES, SUBJECT  
TO THE CONTROL OF THE SECURITY KERNEL, SO THAT  
PROBLEMS BROUGHT ABOUT BY THE CONFLICTING  
REQUIREMENTS FOR SECURITY AND SHARING CAN BE  
IDENTIFIED AND EXPLORED. IT WILL PROVIDE A VEHICLE  
FOR EXPERIMENTATION WITH THE EXTENSIONS OF THE KERNEL  
REQUIRED FOR MULTISOURCE INFORMATION  
CORRELATION.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A010 719 9/5 9/2  
ILLINOIS UNIV URBANA COORDINATED SCIENCE LAB

DESIGN OF TOTALLY SELF-CHECKING  
ASYNCHRONOUS SEQUENTIAL MACHINES.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,  
MAY 75 121P OZGUNER, FUSUN ;  
REPT. NO. R-679, UILU-ENG-75-2214  
CONTRACT: DAAB07-72-C-0259

UNCLASSIFIED REPORT

DESCRIPTORS: \*SWITCHING CIRCUITS, LOGIC CIRCUITS,  
FLIP FLOP CIRCUITS, GATES(CIRCUITS),  
ASYNCHRONOUS SYSTEMS, REDUNDANT COMPONENTS,  
CODING, THEOREMS, THESES

(U)

IDENTIFIERS: \*SEQUENTIAL MACHINES, \*ASYNCHRONOUS  
SEQUENTIAL CIRCUITS, FAULT DETECTION, MEALEY  
MODEL

(U)

PROPERTIES OF STATE ASSIGNMENTS AND CIRCUIT  
REALIZATIONS THAT LEAD TO TOTALLY SELF-CHECKING  
ASYNCHRONOUS MACHINE DESIGNS ARE STUDIED. THE  
STATE VARIABLES AND THE OUTPUTS ARE ENCODED SO THAT  
ALL SINGLE AND UNIDIRECTIONAL FAULTS CAUSE THE  
MACHINE TO ASSUME A NONCODE STATE OR OUTPUT.  
SEVERAL STATE ASSIGNMENT METHODS ARE PRESENTED.  
ONE IS THE TWO-RAIL ASSIGNMENT WHERE THE FEEDBACK  
LINES ARE CHECKED WITH A TWO-RAIL CHECKER TREE. IT  
IS SHOWN THAT ANY TWO-RAIL CHECKER CANNOT BE USED  
BECAUSE THE STATE ASSIGNMENT DOES NOT IN GENERAL HAVE  
ALL THE TWO-RAIL CODEWORDS. THEREFORE A CHECKER  
TREE THAT CAN BE CHECKED BY THE STATE ASSIGNMENT CODE  
MUST BE SELECTED. AN ALGORITHM FOR FINDING SUCH A  
TREE IS PRESENTED. THE EFFECT OF A FAULT ON THE  
ENCODED OUTPUTS IS STUDIED. A SELF-CHECKING  
CIRCUIT PRODUCES A NONCODE OUTPUT FOR AT LEAST ONE  
CODE SPACE INPUT. IT IS SHOWN THAT A SELF-CHECKING  
ASYNCHRONOUS MACHINE WILL PRODUCE A NONCODE OUTPUT  
FOR AT LEAST ONE INPUT SEQUENCE WHICH OCCURS UNDER  
NORMAL OPERATION. FOR THIS DESIGN, THE DESTINATION  
SETS OF EACH INPUT COLUMN OF THE FLOW TABLE ARE  
ENCODED WITH A CONSTANT WEIGHT OR ANOTHER UNORDERED  
CODE. REDUNDANCIES IN THE CODE AND IN THE  
REALIZATION ARE DISCUSSED. IT IS SHOWN THAT EXTRA  
OUTPUTS CAN BE USED FOR THE DETECTION OF PRIMARY  
INPUT FAULTS AND FOR A CLASS OF FLOW TABLES FOR  
FASTER FAULT DETECTION.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-AD10 848 9/4 9/2  
MASSACHUSETTS INST OF TECH CAMBRIDGE RESEARCH LAB OF  
ELECTRONICS

COMPUTER ARCHITECTURE FOR SIGNAL PROCESSING.

(U)

OCT 74 1OP ALLEN, JONATHAN ;  
CONTRACT: DAAB07-74-C-0630, N00014-67-A-0204-0064

UNCLASSIFIED REPORT  
AVAILABILITY: PUB. IN PROCEEDINGS OF THE IEEE,  
V63 N4 P624-633 APR 75.

DESCRIPTORS: \*SIGNAL PROCESSING, \*COMPUTER  
ARCHITECTURE, DIGITAL SYSTEMS, ALGORITHMS,  
PROGRAMMING LANGUAGES, REAL TIME, DIGITAL  
COMPUTERS, COSTS, HIGH RATE, LOGIC CIRCUITS,  
INTEGRATED CIRCUITS, REPRINTS, MEMORY DEVICES (U)

THERE IS AN INCREASING TREND TO USE DIGITAL SIGNAL-  
PROCESSING TECHNIQUES TO SOLVE REAL-TIME PROBLEMS.  
THIS LEADS TO A NEED FOR PROCESSORS WHICH CAN  
PERFORM COMPLICATED SIGNAL-PROCESSING ALGORITHMS ON  
LARGE AMOUNTS OF DATA AT HIGH SPEEDS. COMPUTER  
ARCHITECTURES FOR THIS PURPOSE ARE SHOWN TO ARISE  
FROM A CONSIDERATION OF SEVERAL STRUCTURAL FACTORS,  
INCLUDING TECHNOLOGY, THE ALGORITHMS TO BE PERFORMED,  
DATA STRUCTURES, AND THE PROGRAMMING LANGUAGE. WHEN  
THESE FACTORS ARE COMPLEMENTARY, EFFICIENT YET  
ECONOMICAL DESIGNS RESULT. THE STRUCTURAL FACTORS  
ARE DESCRIBED, AND THEN SEVERAL COMPUTER DESIGNS ARE  
DISCUSSED IN LIGHT OF THIS CONCEPTUAL FRAMEWORK.

(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A011 325 20/1 9/2 9/5  
MASSACHUSETTS INST OF TECH LEXINGTON LINCOLN LAB

SURFACE ACOUSTOELECTRIC CORRELATOR WITH  
SURFACE STATE MEMORY. (U)

DESCRIPTIVE NOTE: JOURNAL ARTICLE.  
74 4P CAFARELLA, JOHN H.; BERS,  
ABRAHAM ISTERN, ERNEST ;  
REPT. NO. MS-3822  
CONTRACT: F19628-73-C-0002  
PROJ: DA-7-X-283304-D-215  
MONITOR: ESD TR-75-152

UNCLASSIFIED REPORT  
AVAILABILITY: PUB. IN IEEE ULTRASONIC  
SYMPOSIUM PROCEEDINGS, P216-219 1974.

DESCRIPTORS: \*SURFACE WAVES, \*MEMORY DEVICES,  
\*CORRELATORS, ACOUSTIC WAVES, SILICON, ACOUSTIC  
SIGNALS, DATA STORAGE SYSTEMS, LITHIUM COMPOUNDS,  
NIOBATES, REPRINTS (U)

IDENTIFIERS: MEMORY CORRELATORS, \*SURFACE STATE  
MEMORIES, \*SURFACE ACOUSTOELECTRIC CORRELATORS,  
TIME CONSTANT, TIME BANDWIDTH PRODUCT (U)

THE RESULTS ARE PRESENTED FROM AN EXPERIMENTAL  
MEMORY-CORRELATOR. SURFACE STATE CHARGE STORAGE  
IS INCORPORATED IN A COUPLED LINBO3-SI SYSTEM  
TO YIELD A DEVICE WHICH STORES A SPATIAL REPLICA OF A  
REFERENCE ACOUSTIC SIGNAL AND GIVES THE CORRELATION  
FUNCTION OF OTHER ACOUSTIC SIGNALS WITH THE  
REFERENCE. THE TIME CONSTANT FOR STORING A PATTERN  
IN CHARGED SURFACE STATES IS MADE MUCH SMALLER THAN  
THE THERMAL DECAY TIME CONSTANT ASSOCIATED WITH THE  
TRAPS. THIS EFFECT ALLOWS WIDE BANDWIDTH SIGNALS TO  
BE STORED FOR LONG TIMES. THE PRESENT DEVICE USES  
SI ON Y-Z LINBO3 AT 166 MHZ. A SHORT  
R.F. STROBE IS APPLIED TO THE SILICON PLATE TO EFFECT  
THE STORAGE OF THE ACOUSTIC WAVE PATTERN IN SURFACE  
STATES. THE CORRELATION LOSS IS 47 DB FOR A 4.4  
MICROSEC CW SIGNAL. THE STROBE DURATION OF 0.4  
MICROSEC CORRESPONDS TO A 2.5 MHZ BANDWIDTH  
CAPACITY, AND A TIME-BANDWIDTH PRODUCT GREATER THAN  
10 HAS BEEN DEMONSTRATED. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A011 326 20/1 9/2 9/5  
MASSACHUSETTS INST OF TECH LEXINGTON LINCOLN LAB

SURFACE WAVE CORRELATOR - CONVOLVER WITH  
MEMORY.

(U)

DESCRIPTIVE NOTE: JOURNAL ARTICLE,  
74 1OP BERS, ABRAHAM ; CAFARELLA, JOHN

H. :

REPT. NO. MS-3890

CONTRACT: F19628-73-C-0002

PROJ: DA-7-X-263304-D-215

MONITOR: ESD TR-75-154

UNCLASSIFIED REPORT

AVAILABILITY: PUB. IN IEEE ULTRASONIC  
SYMPOSIUM PROCEEDINGS, P778-787 1974.

DESCRIPTORS: \*SURFACE WAVES, \*ACOUSTIC WAVES,  
\*MEMORY DEVICES, CORRELATORS, SEMICONDUCTORS,  
DYNAMICS, REPRINTS

(U)

IDENTIFIERS: \*MEMORY CONVOLVERS, \*MEMORY  
CORRELATORS, SURFACE ACOUSTIC WAVES

(U)

THE PRINCIPLES OF OPERATION AND APPLICATION OF  
SURFACE ACOUSTIC WAVE (SAW) CORRELATORS AND  
CONVOLVERS WHICH CONTAIN A MEMORY FOR SIGNALS ARE  
DESCRIBED. A DETAILED ANALYSIS IS PRESENTED FOR THE  
DYNAMICS OF SURFACE STATES ON A SEMI-CONDUCTOR AS A  
MEMORY IN A SAW CORRELATOR-CONVOLVER.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A011 390 9/5 9/2  
WESTINGHOUSE RESEARCH LABS PITTSBURGH PA

THIN FILM DISPLAY SWITCHES.

(U)

DESCRIPTIVE NOTE: FINAL REPT. 1 APR-12 DEC 74,  
MAY 75 43P BRODY, THOMAS P. ; YU, KARL  
K. ;  
REPT. NO. 75-9G9-PRNTM-R1  
CONTRACT: N00014-71-C-0269  
PROJ: NR-215-169

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: \*MATRIX DISPLAYS, \*THIN FILM STORAGE  
DEVICES, TRANSISTORS, PANELS, ELECTROLUMINESCENCE,  
DISPLAY SYSTEMS

(U)

IDENTIFIERS: ELECTROLUMINESCENT PANELS

(U)

A THIN FILM TRANSISTOR WITH A FLOATING SECOND GATE,  
CAPABLE OF NONVOLATILE STORAGE OF ANALOG DATA, WAS  
THE SUBJECT OF THE INVESTIGATION. FURTHER  
DEVELOPMENT RESULTED IN A CLOSELY CONTROLLED,  
REPRODUCIBLE FABRICATION PROCESS AND A HIGHER  
VOLTAGE CAPABILITY. A 40X40 ELEMENT, 1 INCH SQUARE  
MATRIX, CONSISTING OF X-Y ADDRESSABLE MEMORY  
TRANSISTORS AT EACH POINT WAS DESIGNED, LAID OUT  
USING CAD TECHNIQUES AND FABRICATED IN A SINGLE  
VACUUM DEPOSITION CYCLE. MASK AND SUBSTRATE  
REGISTRATION TECHNIQUES WERE ALSO IMPROVED, RESULTING  
AN EXCELLENT RUN-TO-RUN REPRODUCIBILITY OF THE  
DEPOSITION PATTERNS. BY COATING THE FINISHED  
MEMORY MATRICES WITH AN ELECTROLUMINESCENT PHOSPHOR  
(WESTINGHOUSE 'HYPERMAINTENANCE' PHOSPHOR),  
PROVIDING A COMMON TRANSPARENT FRONT ELECTRODE AND  
SEALING WITH A COVER-GLASS, COMPLETE 40 X 40 ELEMENT  
STORAGE DISPLAYS WERE MADE. THE DISPLAYS WERE  
OPERABLE UP TO 140V PEAK-TO-PEAK. THE EL  
DRIVING FREQUENCIES RANGED FROM 3 TO 20 KHZ.  
WRITING OF INFORMATION INTO INDIVIDUAL ELEMENTS WAS  
DEMONSTRATED BY (MANUAL) PULSING OF ROWS AND  
COLUMNS. LETTERS WERE WRITTEN INTO THE PANEL IN  
THIS MANNER, AND THE NON-VOLATILE STORAGE OF SUCH  
PATTERNS OVER PERIODS OF EXCESS OF 90 MINUTES WAS  
DEMONSTRATED.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A011 535 9/5 9/2 17/9  
STANFORD RESEARCH INST MENLO PARK CALIF

CELLULAR LOGIC-IN-MEMORY ARRAYS.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,  
SEP 74 42P PEASE, MARSHALL C. ;  
CONTRACT: N00014-72-C-0431  
PROJ: SRI-1982

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: \*SIGNAL PROCESSING, \*DIGITAL FILTERS,  
FOURIER TRANSFORMATION, LOGIC CIRCUITS, SHIFT  
REGISTERS, RADAR SIGNALS, INTEGRATED CIRCUITS

(U)

IDENTIFIERS: CELLULAR LOGIC IN MEMORY ARRAYS, FAST  
FOURIER TRANSFORM, DISCRETE FOURIER  
TRANSFORMATION, LARGE SCALE INTEGRATED CIRCUITS

(U)

THE OBJECTIVE OF THIS EFFORT WAS TO DETERMINE THE  
ENGINEERING FEASIBILITY OF AN ALL-DIGITAL TRANSVERSE  
FILTER FOR SIGNAL PROCESSING REQUIREMENTS. THIS  
ASSESSMENT IS MADE BY ANALYZING ALTERNATIVE CIRCUIT  
CONFIGURATIONS TO ENOUGH ACCURACY AND DEPTH TO  
DETERMINE IF RRESCRIBED FUNCTIONAL AND SPEED  
SPECIFICATIONS CAN BE MET, AND IF SO, TO CALCULATE  
THE APPROXIMATE HARDWARE COST.

(U)

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UNCLASSIFIED

/ZOM07

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-AD11 702 9/2 20/3 18/8  
ROCKWELL INTERNATIONAL CORP ANAHEIM CALIF ELECTRONICS  
RESEARCH DIV

EFFECTS OF NUCLEAR RADIATION ON MAGNETIC  
BUBBLE DOMAIN MATERIALS AND DEVICES. (U)

DESCRIPTIVE NOTE: FINAL REPT. 1 MAY 73-31 DEC 74,  
JAN 75 91P WILLIAMS, ROSS A.;  
REPT. NO. C73-554/501  
CONTRACT: F19628-73-C-0250  
PROJ: AF-6096  
TASK: 609604  
MONITOR: AFCRL TR-75-0037

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: \*THIN FILM STORAGE DEVICES, \*MEMORY  
DEVICES, \*TRANSIENT RADIATION EFFECTS, \*MAGNETIC  
DOMAINS, SHIFT REGISTERS, THICK FILMS, GARNET,  
RADIATION EFFECTS, X RAYS, MAGNETIC DETECTORS,  
MAGNETIC ALLOYS, GAMMA RAYS (U)

IDENTIFIERS: \*MAGNETIC BUBBLE DOMAINS.  
PERMALLOYS (U)

THE EFFORT CONCENTRATES ON RADIATION-INDUCED  
FAILURE THRESHOLDS AND ASSOCIATED MECHANISMS FOR  
MAGNETIC BUBBLE DOMAIN DEVICES. HOWEVER,  
EXPERIMENTS TO INVESTIGATE THE EFFECTS OF LOW-ENERGY  
X RAYS ON BUBBLE DOMAIN MATERIALS ARE ALSO  
DESCRIBED. IN THE LOW-ENERGY X-RAY STUDIES,  
CHANGES IN HARD BUBBLE SUPPRESSION PROPERTIES, OR  
FERROMAGNETIC-RESONANCE SPECTRA, WERE LOOKED FOR IN  
EITHER OF TWO TYPES OF IRON GARNETS EXPOSED TO MORE  
THAN 6,000,000 R. THE PRIMARY EFFORT CONCERNED  
TRANSIENT RADIATION-INDUCED MEMORY LOSS. A 30 NS  
PULSE OF APPROXIMATELY 1.5 MEV ELECTRONS WAS  
USED. FAILURE PROBABILITIES AS A FUNCTION OF DOSE  
PER PULSE WERE OBTAINED FOR SEVERAL DEVICES.  
TRANSIENT RADIATION-INDUCED BURNOUT OF DOMAIN  
SENSORS WAS ALSO STUDIED FOR BOTH THIN (300 Å)  
AND THICK (4000 Å) PERMALLOY DETECTORS. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A011 800

9/2

HAWAII UNIV HONOLULU DEPT OF INFORMATION AND COMPUTER  
SCIENCE

OPTIMAL CONTROL OF DEMAND-PAGING SYSTEMS,

(U)

75 8P LET,ART ;  
CONTRACT: DA-ARO-D-31-124-71-G43  
MONITOR: ARO 8803.15-EL

UNCLASSIFIED REPORT

DESCRIPTORS: \*MEMORY DEVICES, \*CONTROL THEORY,  
DYNAMIC PROGRAMMING, MATHEMATICAL MODELS,  
ALGORITHMS, THEOREMS

(U)

IDENTIFIERS: \*PAGING, VIRTUAL MEMORY, COMPUTER  
STORAGE MANAGEMENT, STOCHASTIC CONTROL

(U)

DEMAND-PAGING SYSTEMS ARE CHARACTERIZED AS  
STOCHASTIC CONTROL PROCESSES, AND OPTIMAL PAGE  
REPLACEMENT DECISIONS ARE DETERMINED BY MEANS OF  
DYNAMIC PROGRAMMING. THIS APPROACH IS  
DISTINGUISHED FROM OTHERS BY ITS USE OF PAGE  
STRUCTURE INFORMATION, WHICH MAY BE EITHER SUPPLIED A  
PRIORI OR ELSE DYNAMICALLY LEARNED. THE MAIN  
RESULT IS AN OPTIMAL REALIZABLE SOLUTION FOR A  
GENERAL CLASS OF REPLACEMENT PROBLEMS. THE  
RESULTING ALGORITHM SUBSUMES OTHERS (INCLUDING (A  
SUB 0)) AS SPECIAL CASES.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A013 005 9/5 9/1  
RCA ELECTRONIC COMPONENTS PRINCETON N J MICROWAVE  
TECHNOLOGY CENTER

MICROWAVE FREQUENCY MEMORY USING GAAS  
TRANSFERRED-ELECTRON DEVICES.

(U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT. 15 MAY 74-14  
MAY 75.

JUN 75 35P CURTICE,WALTER R. ;  
REPT. NO. PRRL-75-CR-34  
CONTRACT: N00014-74-C-0371  
PROJ: NR-251-015, RF54-545  
TASK: RF54-545-001

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: \*REGISTERS(CIRCUITS), FREQUENCY,  
MICROWAVE EQUIPMENT, GALLIUM ARSENIDES, STRIP  
TRANSMISSION LINES, ELECTRON TRANSFER, SEMICONDUCTOR  
DEVICES, MEMORY DEVICES, VARACTOR DIODES, TUNING  
DEVICES, GUNN DIODES

(U)

IDENTIFIERS: \*TRANSFERRED ELECTRON DEVICES,  
FREQUENCY MEMORIZERS

(U)

TRANSFERRED-ELECTRON DEVICES (TEDS) IN  
MICROSTRIP RF CIRCUITS HAVE BEEN STUDIED FOR USE IN  
FREQUENCY MEMORY APPLICATIONS. THE CLOSEST  
FREQUENCY SPACING OBTAINED FOR MEMORY STATES IN AN  
EXPERIMENTAL SYSTEM IS 22.4 MHZ. TWENTY STATES  
ARE AVAILABLE BETWEEN 11.33 GHZ AND 10.755 GHZ.  
IT WAS SHOWN POSSIBLE TO OPERATE MICROSTRIP  
CIRCUITS IN PARALLEL TO OBTAIN RESONANCES SPACED HALF  
THE SPACING FOR EACH INDIVIDUAL CIRCUIT. ELECTRONIC  
TUNING OF THE WHOLE SET OF FREQUENCY STATES BY MEANS  
OF A VARACTOR WAS DEMONSTRATED. THE SWITCH-ON  
CHARACTERISTIC OF THE STATES WAS STUDIED, AND IT IS  
SHOWN THAT THE MEMORIZER'S RF OUTPUT SIGNAL IS PHASE-  
LOCKED TO THE INPUT SIGNAL WITHIN 50 NS.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A013 318 9/2  
STANFORD UNIV CALIF STANFORD ELECTRONICS LABS

COMPUTER PERFORMANCE MEASUREMENT AND  
EVALUATION METHODS: ANALYSIS AND  
APPLICATIONS.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,  
JUN 74 180P SVOBODOVA,LIBA ;  
REPT. NO. SU-SEL-74-036, TR-72  
CONTRACT: N00014-67-A-0112-0044

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SUPERSEDES REPORT DATED JUN 74.  
AD/A-000 947.

DESCRIPTORS: \*CENTRAL PROCESSING UNITS, \*COMPUTER  
PROGRAMMING, MONITORS, PERFORMANCE, INTERFACES,  
MEMORY DEVICES, MATHEMATICAL MODELS, SYSTEMS  
ANALYSIS, THESES

(U)

IDENTIFIERS: \*COMPUTER PERFORMANCE EVALUATION,  
\*COMPUMETRICS

(U)

THIS STUDY CONCENTRATES ON THE MEASUREMENT PROBLEM  
OF A COMPLEX COMPUTER SYSTEM. SEVERAL ISSUES ARE  
ATTACKED: SYSTEM REPRESENTATION, EVALUATION AND  
APPLICATION OF COMPUTER PERFORMANCE EVALUATION TOOLS,  
POWER OF A PERFORMANCE MONITOR, DESIGN OF A  
PERFORMANCE MONITOR. FOR AN EXTERNAL OBSERVER,  
PERFORMANCE OF A COMPUTER SYSTEM IS THE QUALITY AND  
THE QUANTITY OF SERVICE DELIVERED BY THE SYSTEM.  
HOWEVER, A COMPUTER SYSTEM IS A HIERARCHY OF  
SEVERAL LEVELS, THE LOWEST LEVEL BEING THE CIRCUIT  
LEVEL, THE HIGHEST THE SOFTWARE SUPPORT LEVEL.  
PERFORMANCE OF THE SYSTEM AS A WHOLE IS DETERMINED  
BY PERFORMANCE OF INDIVIDUAL LEVELS. A CONCEPTUAL  
MODEL OF AN EVALUATED COMPUTER SYSTEM, THE P-MODEL,  
IS DEFINED IN THIS STUDY USING THE PRINCIPLES OF  
GENERAL SYSTEMS THEORY; IT PROVIDES A CONVENIENT  
UNIFORM DESCRIPTION FOR OBSERVING A COMPUTER SYSTEM  
AT ANY OF THESE LEVELS. THE ELEMENTS OF THE P-  
MODEL ARE THE LEVEL COMPONENTS; THE OUTPUT ARE  
PERFORMANCE MEASURES RELEVANT TO THE PARTICULAR LEVEL  
AND THE PURPOSE OF EVALUATION.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL No. /ZOM07

AD-A013 829 9/2  
ARMY COMPUTER SYSTEMS COMMAND FORT BELVOIR VA

AN ALGORITHM FOR BLOCKING FACTOR  
OPTIMIZATION.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,  
JUL 75 40P PICKARD,LARRY A. IRAINES,  
MARVIN D. I  
REPT. NO. USACSC-AT-75-03  
PROJ: DA-SX-865803-MY-10  
TASK: SX-865803-MY-1002

UNCLASSIFIED REPORT

DESCRIPTORS: \*FILES(RECORDS), \*MAGNETIC TAPE,  
\*MAGNETIC DISKS, \*BLOCKING, ALGORITHMS,  
OPTIMIZATION, MATHEMATICAL PREDICTION, CENTRAL  
PROCESSING UNITS, DIGITAL COMPUTERS, SERIAL  
PROCESSORS, SEQUENTIAL

(U)

IDENTIFIERS: IBM 360 COMPUTERS, \*BLOCKING FACTORS,  
PERFORMANCE MONITORING, \*SEQUENTIAL FILES,  
\*COMPUTER PERFORMANCE EVALUATION

(U)

THIS REPORT DESCRIBES A PERFORMANCE ENHANCEMENT STUDY CARRIED OUT TO EXAMINE THE IMPACT OF BLOCKING FACTORS ON PROGRAM RUN TIME IN A FIXED PARTITION ENVIRONMENT. INITIAL ANALYSIS IS DESCRIBED TO DETERMINE BLOCKING FACTOR BEHAVIOR. THE RESULTS OF THIS ANALYSIS FORMS THE BASIS FOR THE DEVELOPMENT OF A PERFORMANCE ENHANCEMENT UTILITY ROUTINE TO AUTOMATICALLY PREDICT THE BEST BLOCKING ASSIGNMENT FOR TAPE AND SEQUENTIAL DISK FILES TO MINIMIZE PROGRAM RUN TIME. THE DERIVATION OF THE APPROPRIATE MATHEMATICAL OPTIMIZATION ALGORITHM AND THE UNDERLYING ASSUMPTIONS INHERENT IN THE ALGORITHM ARE EXPLAINED. SUMMARY RESULTS AND TYPICAL TIME SAVINGS FROM THE USE OF THE ALGORITHM ARE PROVIDED TO INDICATE THE INCREASE IN RESOURCE UTILIZATION THAT CAN BE REALIZED FROM IMPLEMENTING THE ROUTINE. DETAILED PROCEDURES ON HOW TO USE THIS TOOL ARE ALSO PROVIDED. (AUTHOR)

(U)

AD-A031 200

DEFENSE DOCUMENTATION CENTER ALEXANDRIA VA  
COMPUTERS IN INFORMATION SCIENCES: COMPUTER COMPONENTS. (U)  
OCT 76

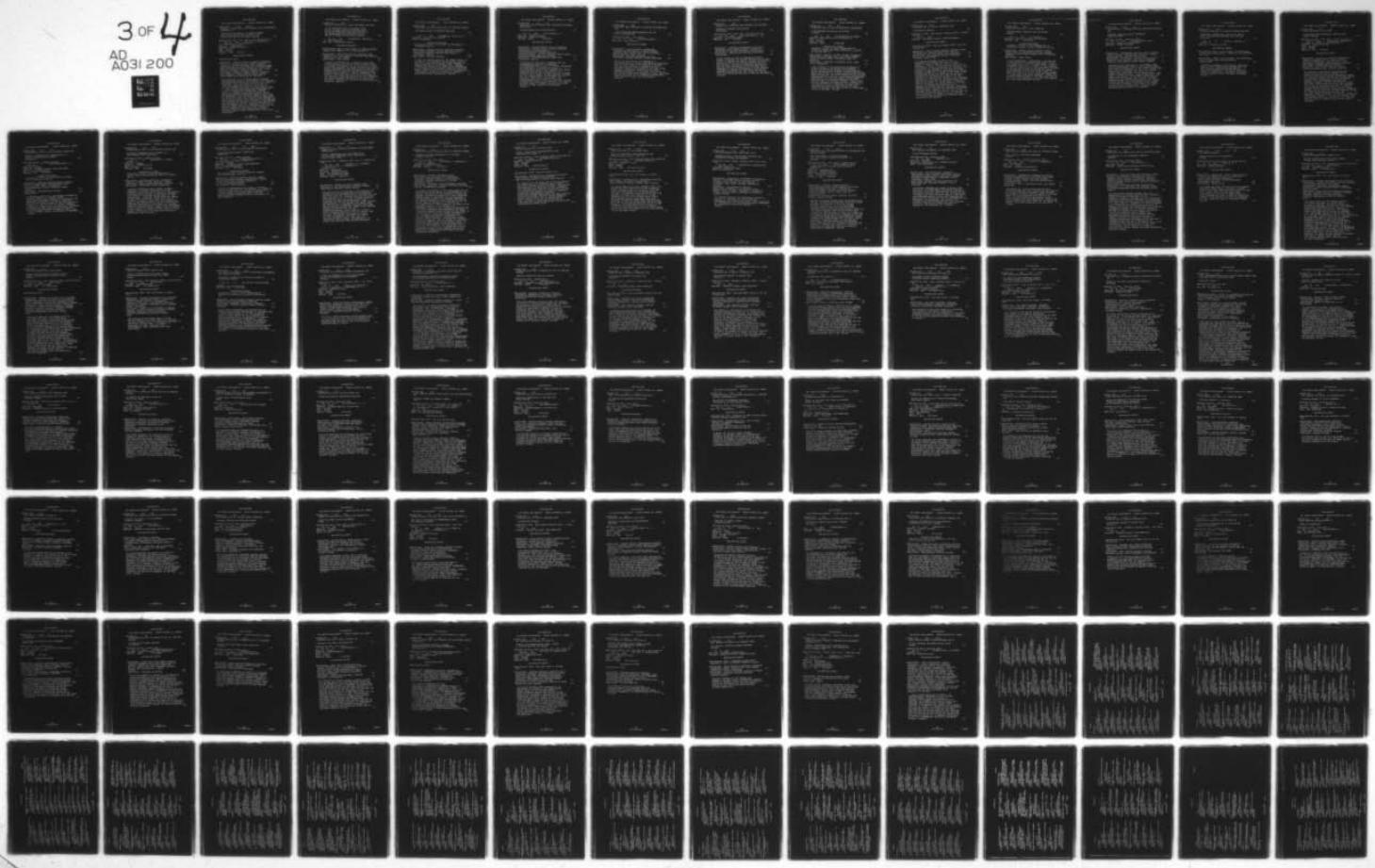
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NL

3 OF 4  
AD  
A031 200



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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A014 364 9/2 20/12  
ROCKWELL INTERNATIONAL CORP ANAHEIM CALIF ELECTRONICS  
RESEARCH DIV

EXPLORATORY DEVELOPMENT OF MAGNETIC BUBBLE  
DOMAIN MATERIAL FOR APPLICATION IN AIR  
FORCE SOLID STATE MASS MEMORY SYSTEMS. (U)

DESCRIPTIVE NOTE: FINAL REPT. 27 NOV 72-30 NOV 74,  
MAR 75 98P HEINZ,D. M. ELLIOTT,M.  
T. HENRY,R. D. STEARNS,F. S. ;  
REPT. NO. C73-4.25/501  
CONTRACT: F33615-73-C-5017  
PROJ: AF-7371  
TASK: 737103  
MONITOR: AFML TR-75-12

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: \*MEMORY DEVICES, \*MAGNETIC MATERIALS,  
\*THIN FILM STORAGE DEVICES, GARNET, GERMANIUM  
COMPOUNDS, GALLIUM COMPOUNDS, IRON COMPOUNDS, RARE  
EARTH ELEMENTS, MAGNETIC DOMAINS, EPITAXIAL GROWTH,  
MAGNETIC RESONANCE, VAPOR DEPOSITION, THIN FILMS,  
RADIATION EFFECTS, STRESSES, TEMPERATURE (U)

IDENTIFIERS: \*MAGNETIC BUBBLE DOMAINS, \*MAGNETIC  
FILM MEMORIES, LIQUID PHASE EPITAXY, CHEMICAL  
VAPOR DEPOSITION, FERROMAGNETIC RESONANCE (U)

THE OBJECTIVES OF THIS PROGRAM WERE TO DEVELOP  
BUBBLE DOMAIN MATERIALS WHICH PERFORM IN A MILITARY  
ENVIRONMENT AND MEET DEVICE GOALS OF A BIT DENSITY OF  
1M BIT/SQ. IN., A DATA RATE OF 1 MHZ AND AN  
OPERATING TEMPERATURE RANGE OF -25 TO 75C. ALL  
OF THESE PROGRAM OBJECTIVES HAVE SUBSTANTIALLY BEEN  
MET. THE MILITARY ENVIRONMENT WAS CONSIDERED TO  
CONSIST OF EXTREMES OF TEMPERATURE, DYNAMIC  
MECHANICAL STRESS AND RADIATION. BUBBLE DEVICE  
OPERATION OVER THE TEMPERATURE RANGE OF -25 TO 75C  
WAS ADDRESSED IN THE DESIGN OF GARNET COMPOSITIONS.  
THE EFFECTS OF SHOCK AND VIBRATION WERE EXPLORED ON  
BUBBLE DOMAIN GARNET FILMS, AND RESULTS WERE OBTAINED  
THAT REVEALED THE ABSENCE OF POTENTIALLY DELETERIOUS  
MAGNETOMECHANICAL EFFECTS. RADIATION STUDIES ON A  
RELATED PROGRAM WHICH WAS COORDINATED WITH THIS ONE  
SHOW THE BUBBLE GARNETS TO BE VERY TOLERANT OF  
NUCLEAR RADIATION. THUS BUBBLE DOMAIN GARNET  
MATERIALS SHOULD PERFORM SATISFACTORILY IN SUCH AN  
ENVIRONMENT. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A014 521 9/2  
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

ON THE RACE-FREE AND MINIMAL COST CODING  
OF THE INTERNAL STATES IN COMPUTER AIDED  
DESIGN OF SEQUENTIAL SWITCHING SYSTEMS. ON  
THE PROGRAMMING SYSTEM RENDIS-5 FOR THE  
DESIGN OF SEQUENTIAL SWITCHING SYSTEMS.

(U)

JUL 75 27P HALLBAUER,G. IHELTZIG,H.  
F. HUMMITZSCH,P. ;  
REPT. NO. FTD-ID(RSI)-1440-74

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. OF MESSEN-STEUERN-  
REGELN (EAST GERMANY) V17 N3 P95-102 MAR 74.

DESCRIPTORS: \*SWITCHING CIRCUITS, \*CODING, LOGIC  
CIRCUITS, FLIP FLOP CIRCUITS, COMPUTER AIDED DESIGN,  
TRANSLATIONS, EAST GERMANY

(U)

IDENTIFIERS: LOGIC DESIGN

(U)

A NUMBER OF PROPERTIES OF A SEQUENTIAL SWITCHING  
SYSTEM DEPEND ON THE CODING OF THE INTERNAL STATES.  
THE CODING, FOR EXAMPLE, HAS AN EFFECT ON THE LOGIC  
ELEMENT REQUIREMENTS, THE SPEED OF SWITCHING, AND THE  
MEMORY REQUIREMENTS. UNCLOCKED SEQUENTIAL SWITCHING  
NETWORKS MAY, IN ADDITION, EXHIBIT SO-CALLED RACE  
CONDITIONS WHICH RESULT IN FAULTY OPERATION OF THE  
NETWORK. THESE RACE CONDITIONS ARE ATTRIBUTABLE TO  
THE NON-IDEAL TRANSITION BEHAVIOR OF REAL COMPONENTS.  
THE CODING PROCEDURE DESCRIBED IN THE REPORT WAS  
PRINCIPALLY DEVISED FOR THE COMPUTER-AIDED DESIGN OF  
INDUSTRIAL CONTROLS.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A014 758 9/2  
CALIFORNIA UNIV LOS ANGELES DEPT OF COMPUTER SCIENCE

THE RENEWAL MODEL FOR PROGRAM BEHAVIOR,

(U)

FEB 74 19P OPDERBECK, H. ICHU, W. W. ;  
CONTRACT: N00014-69-A-0200-4027  
PROJ: NR-048-129

UNCLASSIFIED REPORT

AVAILABILITY: PUB. IN SIAM JNL. ON COMPUTERS, V4  
N3 P356-374 SEP 75.

DESCRIPTORS: \*MEMORY DEVICES, \*COMPUTER PROGRAMS,  
DATA STORAGE SYSTEMS, CENTRAL PROCESSING UNITS,  
ADDRESSING, COMPUTER ARCHITECTURE, MODELS,  
ALGORITHMS, REPRINTS

(U)

IDENTIFIERS: \*VIRTUAL MEMORIES

(U)

A MODEL FOR PROGRAM BEHAVIOR, THE RENEWAL MODEL, IS  
INTRODUCED; ITS PROPERTIES ARE DISCUSSED, AND ITS  
ABILITY TO MODEL THE BEHAVIOR OF REAL PROGRAMS IS  
INVESTIGATED. USING THIS RENEWAL MODEL, SEVERAL  
THEOREMS ARE DERIVED WHICH DESCRIBE THE PERFORMANCE  
OF THE WORKING SET REPLACEMENT ALGORITHM. THEN THE  
RENEWAL MODEL IS USED TO EVALUATE THE PERFORMANCE OF  
A REPLACEMENT ALGORITHM FOR TWO-LEVEL DIRECTLY  
ADDRESSABLE MEMORY HIERARCHIES. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A014 823 9/2 9/5  
AEROSPACE CORP EL SEGUNDO CALIF ENGINEERING SCIENCE  
OPERATIONS

MICROPROCESSORS AND MICROCOMPUTERS, (U)

MAY 75 35P THEIS, DOUGLAS J. ;  
REPT. NO. TR-0075(5112)-7  
CONTRACT: F04701-74-C-0075  
MONITOR: SAMSO TR-75-206

UNCLASSIFIED REPORT

DESCRIPTORS: \*MICROCOMPUTERS, \*DATA PROCESSING,  
\*INTEGRATED CIRCUITS, MEMORY DEVICES, COMPUTER  
PROGRAMMING, MICROPROGRAMMING,  
CHIPS(ELECTRONICS), PRINTED CIRCUITS,  
MICROELECTRONICS, COMPUTER PROGRAMS, RANDOM ACCESS  
COMPUTER STORAGE, READ ONLY MEMORIES (U)  
IDENTIFIERS: \*MICROPROCESSORS, LARGE SCALE  
INTEGRATED CIRCUITS (U)

AN OVERVIEW OF THE LATEST MICROPROCESSOR AND  
MICROCOMPUTER PRODUCTS IS PRESENTED.  
MICROPROCESSORS ARE IN FACT THE CENTRAL PROCESSING  
UNIT PORTION OF A COMPUTER ON A CHIP. A  
MICROPROCESSOR CHIP OR CHIPS TOGETHER WITH MEMORY  
CHIPS AND INPUT-OUTPUT CHIPS QUALIFY AS A  
MICROCOMPUTER AND ARE AVAILABLE TODAY ON A SINGLE  
PRINTED CIRCUIT BOARD. THE ARCHITECTURAL FEATURES  
AND THE MICROLECTRONIC TECHNOLOGIES USED TO  
IMPLEMENT THESE DEVICES ARE COVERED. THE  
MICROPROCESSOR SURVEY INCLUDES 18 DEVICES, AND THE  
MICROCOMPUTER SURVEY HAS 28 MACHINES. THE KINDS OF  
SOFTWARE NEEDED TO PROGRAM THEM AND SOME FUTURE  
TRENDS FOR THESE PRODUCTS ARE DISCUSSED.

(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A015 033 9/2  
AIR FORCE AERO PROPULSION LAB WRIGHT-PATTERSON AFB  
OHIO

A CDC 6600-BASED CROSS-ASSEMBLER FOR THE  
HP2114 MINICOMPUTER.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,  
JUL 75 116P BROWNSTEIN,BARRY J. ;  
REPT. NO. AFAPL-TR-75-31

UNCLASSIFIED REPORT

DESCRIPTORS: \*MINICOMPUTERS, \*ASSEMBLERS,  
TURBINES, EXHAUST SYSTEMS, COMPUTER PROGRAM  
DOCUMENTATION, PUNCHED TAPE, SHIFT REGISTERS,  
MEMORY DEVICES, BINARY NOTATION

(U)

IDENTIFIERS: CDC 6600 COMPUTERS, HP 2114  
COMPUTERS, COMPUTER SOFTWARE, \*CROSS ASSEMBLERS

(U)

ONE OF THE DIFFICULTIES IN PROGRAMMING A  
MINICOMPUTER WITH A MINIMUM COMPLEMENT OF PERIPHERAL  
DEVICES IS THE NEED TO USE PAPER TAPE SOFTWARE.  
THIS SOFTWARE IS NORMALLY PONDEROUS TO USE.  
PROVIDES A MINIMUM OF DIAGNOSTICS, AND VERY LITTLE  
LANGUAGE MODIFICATION CAPABILITY. THE CROSS-  
ASSEMBLER DESCRIBED IN THIS REPORT RUNS ON THE CDC  
6600, USING HIGHER SPEED PERIPHERALS, CARD INPUT, AND  
IS USED VERY MUCH LIKE AN ASSEMBLY LANGUAGE FOR A  
LARGE COMPUTER SYSTEM, SUCH AS COMPASS.

(AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A015 041 9/2  
HARVARD COLL CAMBRIDGE MASS PRESIDENT AND FELLOWS

RESEARCH IN PROGRAM OPTIMIZATION  
TECHNIQUES.

(U)

DESCRIPTIVE NOTE: REPT. FOR 1 JUN 74-31 MAY 75,  
JUN 75 29P CHEATHAM, THOMAS E., JR;  
CONTRACT: F19628-74-C-0208  
MONITOR: ESD TR-75-81

UNCLASSIFIED REPORT

DESCRIPTORS: \*COMPUTER PROGRAMMING, \*HIGH LEVEL  
LANGUAGES, \*DATA STORAGE SYSTEMS, COMPILERS,  
OPTIMIZATION, COMPUTER PROGRAMS, MACHINE CODING  
IDENTIFIERS: COMPUTER APPLICATIONS, STRUCTURED  
PROGRAMMING

(U)

(U)

IN THE CONTEXT OF THE ECL PROGRAMMING SYSTEM,  
GENERAL TECHNIQUES FOR PROGRAM OPTIMIZATION AT HIGH  
LEVELS OF LANGUAGE AND SPECIAL PURPOSE TECHNIQUES TO  
ENHANCE USE OF ECL FOR SYSTEMS PROGRAMMING HAVE  
BEEN STUDIED. THE SPECIFIC PROBLEMS DISCUSSED ARE  
THE EFFICIENT REPRESENTATION OF KNOWLEDGE ABOUT  
PROGRAMS, THE USE OF MEASUREMENTS TO GUIDE PROGRAM  
IMPROVEMENT, COMPILER OPTIMIZATION UNDER STRICT  
RESOURCE CONSTRAINTS AND USER CONTROL OF MACHINE  
LEVEL CODE OPTIMIZATIONS SUCH AS REGISTER ASSIGNMENT.  
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A015 112 9/5 9/3  
PRINCETON UNIV N J DEPT OF ELECTRICAL ENGINEERING

A NEW HARDWARE REALIZATION OF DIGITAL FILTERS.

(U)

FEB 74 SP PELED,ABRAHAM ;ILIU,BEDE ;  
CONTRACT: AF-AFOSR-2101-71, NSF-GK-24187  
PROJ: AF-9749  
TASK: 974906  
MONITOR: AFOSR TR-75-1265

UNCLASSIFIED REPORT  
AVAILABILITY: PUB. IN IEEE TRANSACTIONS ON  
ACOUSTICS, SPEECH AND SIGNAL PROCESSING, VASSP-22  
N6 P456-462 DEC 74.

DESCRIPTORS: \*DIGITAL FILTERS, \*SIGNAL PROCESSING,  
SEMICONDUCTOR DEVICES, REAL TIME, COSTS, POWER,  
MEMORY DEVICES, ERRORS, INTEGRATED CIRCUITS,  
REPRINTS

(U)

IDENTIFIERS: TRANSISTOR TRANSISTOR LOGIC, LARGE  
SCALE INTEGRATION

(U)

A NEW APPROACH TO THE IMPLEMENTATION PROBLEM OF  
DIGITAL FILTERS IS PRESENTED. THIS APPROACH  
CAPITALIZES ON RECENT ADVANCES IN SEMICONDUCTOR  
MEMORY TECHNOLOGY AND IS SHOWN TO OFFER SIGNIFICANT  
REDUCTIONS IN COST AND POWER CONSUMPTION FOR THE SAME  
SPEED OF OPERATION AS THAT OF EXISTING REALIZATIONS.  
FURTHERMORE, THIS APPROACH MAKES POSSIBLE SPEEDS OF  
OPERATION WHICH CANNOT BE ACHIEVED BY EXISTING  
REALIZATIONS. THIS PROPOSED APPROACH YIELDS A VERY  
FLEXIBLE HARDWARE CONFIGURATION AND A DISCUSSION OF  
THE VARIOUS OPTIONS IS PRESENTED TOGETHER WITH A  
COMPARISON TO EXISTING REALIZATIONS. THE MEAN-  
SQUARED ERROR RESULTING FROM THE USE OF FINITE WORD  
LENGTH IS ANALYZED. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A015 125 9/2  
COMPUTER CORP OF AMERICA CAMBRIDGE MASS

DATA COMPUTER PROJECT.

(U)

DESCRIPTIVE NOTE: SEMI-ANNUAL TECHNICAL REPT. 1 JAN-30  
JUN 75.

JUN 75 65P

CONTRACT: MOA-903-74-C-0225, DARPA ORDER-2687

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO REPORT DATED 31 DEC 74,  
AD-A008 877.

DESCRIPTORS: \*DATA STORAGE SYSTEMS, \*COMMUNICATIONS  
NETWORKS, TIME SHARING, COMPILERS, COMPUTER

(U)

ARCHITECTURE, ON LINE SYSTEMS, DATA MANAGEMENT  
IDENTIFIERS: \*DATA COMPUTER PROJECT, \*COMPUTER  
NETWORKS, TENEX SYSTEM

(U)

THIS REPORT DESCRIBES THE WORK ON THE  
DATA COMPUTER, A NETWORK DATA UTILITY, FROM  
JANUARY 1, 1975 TO JUNE 30, 1975. THE WORK IS  
DESCRIBED IN DETAIL IN SECTIONS 2-8. SECTION 2 IS  
A DISCUSSION OF THE DATA COMPUTER ARCHITECTURE, WITH  
EMPHASIS ON THE INCREASING LEVELS OF FUNCTIONAL  
ABSTRACTION BEGINNING WITH THE HARDWARE AND MOVING  
OUTWARD. SECTION 3 IS A REPORT ON THE USAGE OF THE  
DATA COMPUTER DURING THE REPORTING PERIOD, AND A  
DISCUSSION OF NEW WORK BEING DONE IN THE USER  
SERVICES AND SUPPORT AREA. SECTION 4 IS A DETAILED  
DISCUSSION OF THE WORK ON THE DATA COMPUTER SOFTWARE  
CARRIED OUT DURING THE PERIOD UNDER DISCUSSION.  
MOST OF THE EFFORT WAS CONCENTRATED IN THIS AREA.  
SECTION 5 DISCUSSES THE ON-GOING WORK OF  
DOCUMENTING THE DATA COMPUTER. SECTION 6 DESCRIBES  
PROGRESS MADE IN THE AREA OF DATA COMPUTER HARDWARE  
AND OPERATIONAL SUPPORT. SECTION 7 IS A BRIEF  
OVERVIEW OF THE NMRO WORK AND ITS IMPLICATIONS FOR  
THE DATA COMPUTER IN GENERAL. FINALLY, SECTION  
8 IS A CATCH-ALL FOR MINOR BUT IMPORTANT AREAS OF  
DATA COMPUTER DEVELOPMENT.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A015 498 9/2  
MASSACHUSETTS INST OF TECH CAMBRIDGE

DISTINGUISHABLE CODEWORD SETS FOR SHARED  
MEMORY.

(U)

DEC 74 1OP ELIAS, PETER ;  
CONTRACT: DAHC04-71-C-0039, NSF-GK-37582  
MONITOR: ARO 10197.7-EL

UNCLASSIFIED REPORT  
AVAILABILITY: PUB. IN IEEE TRANSACTIONS ON  
INFORMATION THEORY, VIT-21 N4 P392-399 JUL 75.

DESCRIPTORS: \*RANDOM ACCESS COMPUTER STORAGE,  
\*MEMORY DEVICES, \*INFORMATION THEORY, CODING,  
INEQUALITIES, COMPUTER PROGRAMS, DATA PROCESSING,  
REPRINTS

(U)

IDENTIFIERS: \*CODE WORDS

(U)

IN DATA PROCESSING, A TRANSMITTER T AND RECEIVER R COMMUNICATE VIA A RANDOM-ACCESS MEMORY M THAT THEY SHARE WITH A SET U OF OTHER USERS. T SELECTS A CODEWORD C FROM A SET C KNOWN TO R AND STORES C IN SOME OF THE CELLS OF M, NOT NECESSARILY ADJACENT TO ONE ANOTHER. U DOES NOT CHANGE THE VALUES T HAS STORED BUT FILLS IN THE VALUES STORED IN THE OTHER CELLS OF M. C IS SAID TO BE DISTINGUISHABLE IF R CAN ALWAYS FIND WHICH CODEWORD T STORED IN M NO MATTER WHAT U STORES IN THE OTHER CELLS AND TO BE LOCALLY DISTINGUISHABLE IF R CAN DO SO READING ONLY THE VALUES WRITTEN. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A015 808 9/5 9/2  
ILLINOIS UNIV AT URBANA-CHAMPAIGN COORDINATED SCIENCE  
LAB

COMPUTER AIDED ANALYSIS OF INTEGRATED  
INJECTION LOGIC. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,  
SEP 75 46P NIEHAUS, JEFFREY ALAN ;  
REPT. NO. R-689, UILU-ENG-75-2224  
CONTRACT: DAAB07-72-C-0259

UNCLASSIFIED REPORT

DESCRIPTORS: \*INTEGRATED CIRCUITS, \*LOGIC CIRCUITS,  
DIGITAL SYSTEMS, COMPUTERIZED SIMULATION, THESES,  
GATES(CIRCUITS), COMPUTER APPLICATIONS (U)  
IDENTIFIERS: \*INTEGRATED INJECTION LOGIC CIRCUITS,  
COMPUTER AIDED ANALYSIS, LARGE SCALE INTEGRATED  
CIRCUITS, LOGIC DESIGN, SPICE COMPUTER PROGRAM (U)

INTEGRATED INJECTION LOGIC IS A LOW POWER, HIGH  
DENSITY BIPOLE LOGIC FAMILY. THE SWITCHING SPEED  
IS INVERSELY PROPORTIONAL TO THE CURRENT LEVELS USED,  
WHICH CAN VARY ANYWHERE FROM THE NA TO MICROAMP  
RANGE. SINCE INTEGRATED INJECTION LOGIC IS A  
CURRENT SWITCHING LOGIC, IT CAN OPERATE OVER A WIDE  
RANGE OF SUPPLY VOLTAGES. BEIDES POSSESSING A LOW  
SPEED POWER PRODUCT, IT HAS THE HIGHEST PACKING  
DENSITY OF ANY STANDARD LOGIC FAMILY. THE PAPER  
COMPARES RESULTS OF DERIVED EQUATIONS WITH CIRCUIT  
SIMULATIONS RUN UNDER THE BERKELEY SPICE PROGRAM  
ON THE DEC-10 COMPUTER. LOGIC DESIGN WITH THESE  
MULTIPLE-OUTPUT, SINGLE-INPUT DEVICES IS ALSO  
ANALYZED AND SIMULATED ON THE COMPUTER. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-AD16 137 9/2  
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

SUCCESSFUL INTERNATIONAL TESTING OF JSEP EC  
7902 - CZECHOSLOVAK COMPOUND UNIT FOR TAPE  
PUNCHING,

(U)

MAY 75 17P VILNER,L. ; KOVARIK,J. ;  
KEPKA,M. ;  
REPT. NO. FTD-HC-23-1130-75

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. OF MECHANIZACE,  
AUTOMATIZACE ADMINISTRATIVY (USSR) V13 N12 P479-482,  
487 1973.

DESCRIPTORS: \*INPUT OUTPUT DEVICES, DATA PROCESSING,  
TESTS, PUNCHED TAPE, CZECHOSLOVAKIA,  
TRANSLATIONS

(U)

:CONTENTS: SUCCESSFUL INTERNATIONAL TESTING OF  
JSEP EC 7902 - CZECHOSLOVAK COMPOUND UNIT FOR  
TAPE PUNCHING; SERVICE COMPUTER CENTRS  
MASCHINELLES RECHNEN IN THE GERMAN DEMOCRATIC  
REPUBLIC; INTERNATIONAL TESTING OF THE OUTPUT  
COLUMN PUNCHER EC 7014 IN NATIONAL ENTERPRISE  
ARITHMA.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-AD16 482 9/2 1/3  
TEXAS INSTRUMENTS INC DALLAS

DISTRIBUTED PROCESSOR/MEMORY ARCHITECTURES  
DESIGN PROGRAM. (U)

DESCRIPTIVE NOTE: FINAL REPT. 10 DEC 73-7 DEC 74,  
FEB 75 500P CONSOLVER,G. SACKLEY,D. ;  
RICKARD,M. ;MCAFEE,R. ;SHIPCHANDLER,T. ;  
CONTRACT: F33615-74-C-1018  
PROJ: AF-2003  
TASK: 200304  
MONITOR: AFAL TR-75-80

UNCLASSIFIED REPORT

DESCRIPTORS: \*AVIONICS, \*COMPUTER PROGRAMMING,  
\*CENTRAL PROCESSING UNITS, MEMORY DEVICES,  
COMPUTER ARCHITECTURE, LOGIC CIRCUITS, SHIFT  
REGISTERS, INTERFACES, COMPUTERIZED SIMULATION,  
DATA BASES, COMPUTER PROGRAMS, FORTRAN (U)

IDENTIFIERS: DISTRIBUTED COMPUTER SYSTEMS,  
COMPUTER NETWORKS, FAULT TOLERANT COMPUTING (U)

THE PURPOSE OF DISTRIBUTED PROCESSOR/MEMORY  
ARCHITECTURE (DP/M) DESIGN PROGRAM WAS TO  
EXTEND THE DP/M AVIONIC SYSTEM PROCESSING CONCEPT  
TO A DETAILED SYSTEM HARDWARE AND SOFTWARE DESIGN.  
THE FUNCTIONAL DESIGN FOR THE DP/M PROCESSING  
ELEMENT (PE) IS SUMMARIZED, INCLUDING THE  
PROCESSOR, MEMORY, INPUT/OUTPUT INTERFACE, AND A  
DUAL-LEVEL TIME-DIVISION-MULTIPLEX BUS INTERFACE  
UNIT. A SET OF SIMULATION AND ANALYSIS PROGRAMS  
WAS DEVELOPED FOR MODELING BOTH THE HIGH-LEVEL  
NETWORK INTERACTION AMONG INTERCONNECTED PROCESSING  
ELEMENTS AND THE DETAILED INTERNAL OPERATION OF THE  
PE. OTHER MAJOR AREAS EXAMINED WERE THE  
EXECUTIVE CONTROL SOFTWARE, THE PROCESSES CONSTRUCTION  
METHODOLOGY REQUIRED TO DEVELOP AND ALLOCATE REAL-  
TIME SOFTWARE FOR DP/M, AND METHODS THAT COULD BE  
USED WITH DP/M TO PROMOTE AVIONIC SYSTEM FAULT  
TOLERANCE. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A016 688 9/1 9/2  
MASSACHUSETTS INST OF TECH LEXINGTON LINCOLN LAB

COHERENT INTEGRATION AND CORRELATION IN A  
MODIFIED ACOUSTOELECTRIC MEMORY  
CORRELATOR.

(U)

DESCRIPTIVE NOTE: JOURNAL ARTICLE,  
MAY 75 4P INGEBRIGHTSEN, KJELL A. ;  
STERN, ERNEST ;  
REPT. NO. JA-4B24  
CONTRACT: F19628-73-C-0002, ARPA ORDER-2006  
PROJ: DA-7-X-263304-D-215  
MONITOR: ESD TR-75-273

UNCLASSIFIED REPORT  
AVAILABILITY: PUB. IN APPLIED PHYSICS LETTERS,  
V27 N4 P170-172, 15 AUG 75.

DESCRIPTORS: \*SCHOTTKY BARRIER DEVICES, \*MEMORY  
DEVICES, \*CORRELATORS, SEMICONDUCTOR DIODES,  
ANALOG SIGNALS, ARRAYS, INTEGRATION,  
POLYCRYSTALLINE, SILICON, REPRINTS, CHARGE  
CARRIERS

(U)

IDENTIFIERS: \*ACOUSTOELECTRIC MEMORY  
CORRELATORS

(U)

THE STORAGE, CORRELATION, AND COHERENT INTEGRATION  
OF ANALOG SIGNALS IN A SCHOTTKY DIODE  
ACOUSTOELECTRIC MEMORY CORRELATOR IS DESCRIBED. THE  
EXPERIMENTS DEMONSTRATE STORAGE OF PHASE AND  
AMPLITUDE OF A 70-MHZ SIGNAL BY THE DISTRIBUTION OF  
CHARGE IN AN ARRAY OF SCHOTTKY DIODES. COHERENT  
INTEGRATION IS OBTAINED BY ACCUMULATING A SUCCESSION  
OF CHARGES IN HIGHLY RESISTIVE POLYCRYSTALLINE  
SILICON ISLANDS. COHERENT INTEGRATION OVER A TIME  
PERIOD OF SEVERAL TENS OF MILLISECONDS IS REPORTED.  
(AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A016 689 9/2 9/5  
MASSACHUSETTS INST OF TECH LEXINGTON LINCOLN LAB

MULTICHP INTEGRATED CIRCUIT MEMORY WITH  
PHOTOFORMED PLATED CONDUCTORS. (U)

DESCRIPTIVE NOTE: JOURNAL ARTICLE,  
JUN 74 9P GUDITZ,ELIS A. ;BURKE,  
ROBERT L. ;  
REPT. NO. JA-4896  
CONTRACT: F19628-73-C-0002  
PROJ: AF-649L  
MONITOR: ESD TR-75-228

UNCLASSIFIED REPORT  
AVAILABILITY: PUB. IN IEEE TRANSACTIONS ON  
PARTS, HYBRIDS, AND PACKAGING, VPHP-11 N2 P89-96  
JUN 75.

DESCRIPTORS: \*CHIPS(ELECTRONICS), \*INTEGRATED  
CIRCUITS, \*MEMORY DEVICES, PLASTICS, NICKEL,  
SUBSTRATES, CIRCUIT INTERCONNECTIONS, REPRINTS  
IDENTIFIERS: PHOTOFORMED PLATED CONDUCTORS (U)

A 20-CHIP INTEGRATED CIRCUIT MEMORY HAS BEEN  
CONSTRUCTED UTILIZING TECHNIQUES OF PLASTIC  
EMBEDMENT, PHOTOFORMATION OF PLASTICS, AND SELECTIVE  
ELECTROLESS METAL DEPOSITION PREVIOUSLY REPORTED.  
THIS PAPER IS A CONTINUATION AND UPDATE OF THAT  
EARLIER WORK. IT HAS BEEN DEMONSTRATED THAT GROUPS  
OF PASSIVATED INTEGRATED CIRCUIT CHIPS CAN BE  
ACCURATELY PLACED IN ARRAY POSITIONS, EMBEDDED IN  
PLASTIC, AND INTERCONNECTED WITH ELECTROLESS NICKEL  
CONDUCTORS DEPOSITED IN PHOTOFORMED MULTILAYERED  
CONDUCTOR PATHS SEPARATED BY SELECTIVELY PHOTOFORMED  
PLASTIC DIELECTRIC LAYERS. THERMAL PATHS OF NICKEL,  
PLATED DIRECTLY TO THE BACKS OF THE CHIPS AND TO AN  
ADHERED PHOTOPOLYMERIZED METAL SUBSTRATE, EFFECTIVELY  
REMOVE HEAT FROM THE CHIPS. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A016 703 9/1 9/2 20/1  
MASSACHUSETTS INST OF TECH LEXINGTON LINCOLN LAB

A SCHOTTKY-DIODE ACOUSTIC MEMORY AND  
CORRELATOR.

(U)

DESCRIPTIVE NOTE: JOURNAL ARTICLE,  
FEB 75 4P INGEBRIDISEN,KJELL A. ;  
COHEN,RONALD A. ;MOUNTAIN,ROBERT W. ;  
REPT. NO. JA-4489  
CONTRACT: F19628-73-C-0002, ARPA ORDER-600  
PROJ: DA-7-X-263304-D-215  
MONITOR: ESD TR-75-235

UNCLASSIFIED REPORT  
AVAILABILITY: PUB. IN APPLIED PHYSICS LETTERS,  
V26 N11 P596-598, 1 JUN 75.

DESCRIPTORS: \*SCHOTTKY BARRIER DEVICES, \*MEMORY  
DEVICES, \*ACOUSTIC SIGNALS, \*CORRELATORS, SURFACE  
WAVES, DELAY LINES, MATRICES(CIRCUITS),  
SILICON, NIOBATES, REPRINTS

(U)

IDENTIFIERS: LITHIUM NIOBATE

(U)

EXPERIMENTS DEMONSTRATE THAT IMAGES OF ACOUSTIC  
SIGNALS CAN BE STORED FOR TENS OF MSEC IN A MATRIX OF  
SCHOTTKY DIODES ON A SILICON SURFACE ADJACENT TO A  
LITHIUM NIOBATE SURFACE-WAVE DELAY LINE. THE  
EXPERIMENTS SHOW CHARGING TIMES OF THE ORDER OF 10  
NSEC. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A016 940 9/2 9/1  
GENERAL ELECTRIC CORPORATE RESEARCH AND DEVELOPMENT  
SCHENECTADY N Y

DESIGN, FABRICATION, AND EVALUATION OF AN  
ELECTRON BEAM ADDRESSABLE HIGH INFORMATION  
DENSITY MEMORY TUBE. (U)

DESCRIPTIVE NOTE: QUARTERLY REPT. NO. 1, 1 MAR-30 MAY  
75.

OCT 75 35P LEMMOND,C. Q. HUGHES,W.  
C. KIRKPATRICK,C. G. POSSIN,G. E. I  
FISHER,J. K. ;  
REPT. NO. SRD-75-099  
CONTRACT: DAAB07-75-C-1312  
PROJ: DA-IS-762705-AH-94-D2  
TASK: IS-762705-AH-94-D-205  
MONITOR: ECOM 1312-1-75

UNCLASSIFIED REPORT

DESCRIPTORS: \*MEMORY DEVICES, \*STORAGE TUBES,  
ELECTRON OPTICS, RANDOM ACCESS COMPUTER STORAGE (U)  
IDENTIFIERS: COMPUTER STORAGE DEVICES (U)

THE TUBE IS TO BE A SEALED-OFF, SELF-CONTAINED UNIT  
CONSISTING OF AN ELECTRON SOURCE, THE NECESSARY  
ELECTRON OPTICS FOR PERFORMING THE REQUIRED WRITE AND  
READ FUNCTIONS, AND A STORAGE STRUCTURE CONTAINING  
APPROXIMATELY  $1 \cdot 8 \times 10$  TO THE 7TH POWER ELEMENTS.  
A RELIABLE AND WELL-ENGINEERED MEMORY TUBE  
DEMONSTRATING LIFE AND ENVIRONMENTAL CHARACTERISTICS  
ARE OBJECTIVES OF THIS PROGRAM. TWO MEMORY TUBES  
ARE THE GOAL OF THE PROGRAM. VIBRATION TESTS WERE  
CONDUCTED ON AN ELECTRON BEAM MEMORY TUBE FURNISHED  
GENERAL ELECTRIC BY THE U.S. ARMY  
ELECTRONICS COMMAND. THESE TESTS WILL DICTATE  
DESIGN CHANGES NECESSARY SO THAT AN IMPROVED TUBE  
WILL MEET VIBRATIONAL REQUIREMENTS. GENERAL  
ELECTRIC HAS MODIFIED ITS MEMORY TEST SYSTEM  
FOR TUBE PERFORMANCE TESTS, RFI TESTS AND  
TEMPERATURE TESTS. SEVERAL IMPROVEMENTS TO THE  
BEAMOS TUBE HAVE BEEN MADE AND ARE DESCRIBED. (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A016 951 9/2  
KANSAS STATE UNIV MANHATTAN DEPT OF COMPUTER SCIENCE

RESEARCH INTO THE DEVELOPMENT OF A LOW-COST  
HARDWARE MONITOR.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,  
JUL 75 271P WALLENTINE,V. ANDERSON,G. ;  
KELLER,R. ;FISHER,P. ;  
CONTRACT: DAHC04-74-G-0103  
MONITOR: USACSC AT-75-07

UNCLASSIFIED REPORT

DESCRIPTORS: \*CENTRAL PROCESSING UNITS,  
\*MINICOMPUTERS, \*MONITORS, DATA PROCESSING  
TERMINALS, COMPUTER GRAPHICS, LOGIC CIRCUITS,  
COMPILERS, COMPUTER PROGRAMMING, COMPUTER  
PROGRAMS, FORTRAN  
IDENTIFIERS: \*COMPUTER SYSTEMS HARDWARE, \*COMPUTER  
PERFORMANCE EVALUATION, \*COMPUTER HARDWARE MONITORS,  
FORTRAN 4 PROGRAMMING LANGUAGE (U)

THE EFFORT IN PURSUANCE OF THE STATED OBJECTIVE WAS  
CONCENTRATED ON THE DESIGN OF THE HARDWARE IN THE  
MONITOR, THE DESIGN OF THE SOFTWARE TO CONTROL THE  
HARDWARE, AND THE DEVELOPMENT OF A BASIC REPORTING  
PACKAGE USEFUL IN ANALYZING THE DATA COLLECTED.  
THE DESIGN OBJECTIVES OF THE HARDWARE MONITOR AND  
THE SOFTWARE INTERFACE BETWEEN THE MONITOR AND THE  
ANALYST WERE AS FOLLOWS: (1) TO PROVIDE ALL  
THE CAPABILITIES OF THOSE CURRENTLY AVAILABLE ON THE  
COMMERCIAL MARKET; (2) TO PROVIDE THE  
MEASUREMENT ANALYST A MORE FLEXIBLE MEASUREMENT TOOL  
WITH WHICH TO EXPLORE NEW MEASUREMENTS AND THEIR  
CORRELATIONS BEFORE INVESTING THE TIME AND EFFORT TO  
MANUALLY SET THE LOGIC FOR DESIRED MEASUREMENTS;  
(3) TO DEVELOP A MEASUREMENT FRONT-END FOR A  
CENTRAL PROCESSING SYSTEM (MINICOMPUTER) WHICH  
COULD BE USED TO MONITOR A LARGE RANGE OF SUBJECT  
SYSTEMS (TO PROVIDE A DEVICE CAPABLE OF TRACKING AT  
NANOSECOND SPEED AS WELL AS MILISECOND SPEED); (4)  
TO PROVIDE AN AUTOMATED METHOD OF ESTABLISHING (A  
LEVEL OF) CORRECTNESS OF THE MEASUREMENT (DATA)  
COLLECTED; (5) TO RELIEVE THE MEASURMENT ANALYST  
OF DETAILED CONTROL OF THE HARDWARE MONITOR AND  
PERMIT HIM TO CONCENTRATE MORE INTENTLY ON THE  
MEASUREMENT EXPERIMENT. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A017 313 9/5  
GENERAL ELECTRIC CO PITTSFIELD MASS

DIGITAL MICROCIRCUIT CHARACTERIZATION AND  
SPECIFICATION. VOLUME I. (U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT. FEB 74-MAR 75.  
AUG 75 262P OSTROWSKI, THOMAS M.;  
CONTRACT: F30602-74-C-0159  
PROJ: AF-5519  
TASK: 551904  
MONITOR: RADC TR-75-216-VOL-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-A017 314.

DESCRIPTORS: \*MICROCIRCUITS, \*INTEGRATED CIRCUITS,  
TEST METHODS, RELIABILITY(ELECTRONICS),  
SPECIFICATIONS, DIGITAL SYSTEMS, LOGIC CIRCUITS (U)

THE OBJECTIVE OF THE EFFORT WAS TO REVIEW PROPOSED  
MIL-M-38510 DIGITAL INTEGRATED CIRCUIT DETAIL  
SPECIFICATIONS FOR TECHNICAL ACCURACY, COMPLETENESS  
AND CONFORMANCE TO ESTABLISH MILITARY STANDARDS.  
THIS INCLUDED WORST CASE TEST SITUATIONS, CRITICAL  
TIMING PATHS AND GENERATION OF SPECIAL SCREENING  
PROCEDURES. COMPREHENSIVE LABORATORY  
INVESTIGATIONS WERE CONDUCTED ON LOW POWER SCHOTTKY  
DEVICES AND STANDARD SCHOTTKY VOLTAGE BREAKDOWN  
MODES TO OBTAIN DATA. THE LOW POWER SCHOTTKY  
STUDY INCLUDED DC, SWITCHING AND FUNCTIONAL  
CHARACTERISTICS, VENDOR COMPARISONS, SPECIFICATION  
GUIDELINES AND DESIGN RULES. (U)

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/ZOM07

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A017 314 9/5 14/4  
GENERAL ELECTRIC CO PITTSFIELD MASS

DIGITAL MICROCIRCUIT CHARACTERIZATION AND  
SPECIFICATION. VOLUME II AND III. (U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT. FEB 74-MAR 75,  
AUG 75 254P OSTROWSKI, THOMAS M. ;  
CONTRACT: F30602-74-C-0159  
PROJ: AF-5519  
TASK: 551904  
MONITOR: RADC TR-75-216-VOL-2/3

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 1, AD-A017  
313.

DESCRIPTORS: \*MICROCIRCUITS, \*INTEGRATED CIRCUITS,  
TEST METHODS, RELIABILITY(ELECTRONICS),  
SPECIFICATIONS, DIGITAL SYSTEMS, LOGIC CIRCUITS (U)

THE VOLUME CONSISTS OF LOGIC INTEGRITY TEST (LIT)  
REPORTS FOR TESTS GENERATED FOR THE INTEGRATED  
CIRCUIT DEVICES LISTED IN THE INDEX. ALL OF THE  
TESTS ARE FOR DEVICES THAT EITHER ARE ALREADY  
INCLUDED IN MIL-M-38510 SLASH SHEETS OR ARE TO BE  
INCLUDED IN FUTURE SLASH SHEETS. LIT'S WERE  
GENERATED FOR TTL, STTL AND CMOS FAMILY TYPES.  
FOR THE CMOS DEVICES, ADDITIONAL TESTS WERE  
GENERATED TO CHECK FOR WORST CASE LEAKAGE PATHS.  
AS A PART OF THE TEST GENERATIONS, THE TESTS WERE  
PROVED BY TESTING REPRESENTATIVE DEVICES. IN SOME  
INSTANCES LIT'S WERE SUBMITTED BY INTEGRATED  
CIRCUIT MANUFACTURERS WHERE UPON THEY WERE CHECKED  
FOR ACCURACY AND COMPLETENESS AND THEN WERE EDITED,  
UPDATED AND PROOF TESTED. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A017 509 14/5 9/2  
STANFORD RESEARCH INST MENLO PARK CALIF

INVESTIGATION OF A PHOTODICHROIC MATERIAL FOR  
HOLOGRAPHIC STORAGE AND RECOVERY. (U)

DESCRIPTIVE NOTE: ANNUAL TECHNICAL REPT. SEP 74-JUL  
75.

AUG 75 40P LEHMANN,MATT IMAGEE,THOMAS  
J. FARMISTEAD,R. A. ;  
CONTRACT: N00014-72-C-0260  
PROJ: SRI-PYU-1777

UNCLASSIFIED REPORT

DESCRIPTORS: \*HOLOGRAPHY, \*PHOTOGRAPHIC MATERIALS,  
\*CRYSTAL STRUCTURE, \*MEMORY DEVICES, \*OPTICAL  
STORAGE, ALKALI METALS, HALIDES, SODIUM,  
FLUORIDES, INPUT OUTPUT DEVICES, TEMPERATURE  
CONTROL (U)

IDENTIFIERS: PHOTODICHROIC MATERIALS,  
NONDESTRUCTIVE READOUT, HIGH DENSITY OPTICAL  
MEMORY, ALKALI HALIDES, \*HOLOGRAPHIC INFORMATION  
STORAGE, OPTICAL CRYSTAL MEMORIES, PHOTOCHROMIC  
STORAGE SYSTEMS (U)

THIS REPORT DESCRIBES THE EXPERIMENTAL EFFORTS TO  
EVALUATE THE INFLUENCE OF SURFACE DEFECTS,  
TEMPERATURE, AND ACCELERATED FATIGUE TESTS CYCLING ON  
THE PROPERTIES OF THE ION-IMPLANTED DEVICE STRUCTURES  
AND HOLOGRAPHIC STORAGE AND RECOVERY.

(AUTHOR) (U)

UNCLASSIFIED

DOC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A018 213 9/1 20/12  
CALIFORNIA UNIV LOS ANGELES SCHOOL OF ENGINEERING AND  
APPLIED SCIENCE

LONG TERM MEMORY IN JUNCTION DEVICES  
USING MULTIVALENT TRAPPING IMPURITIES IN  
SILICON.

(U)

DESCRIPTIVE NOTE: FINAL REPT. 1 FEB-30 JUN 75.  
OCT 75 127P DOMINGO, GEORGE ; HOLM-  
KENNEDY, JAMES W. ; KINGSLEY, WILLIAM ; NASH,  
JAMES G. ;

REPT. NO. UCLA-ENG-7575  
CONTRACT: DAAB07-73-C-0306  
PROJ: DA-1-S-762705-AH-94-R  
TASK: 1-S-762705-AH-94-R-3  
MONITOR: ECOM 73-0306-F

UNCLASSIFIED REPORT

DESCRIPTORS: \*SCHOTTKY BARRIER DEVICES,  
\*SEMICONDUCTOR DIODES, \*SEMICONDUCTOR JUNCTIONS,  
TRAPPING(CHARGED PARTICLES), IMPURITIES,  
EPITAXIAL GROWTH, SILICON, SWITCHING, WAFERS,  
ZINC, ELECTRONS, ETCHING, MEMORY DEVICES,  
VALENCE, DOPING (U)

IDENTIFIERS: \*FIELD INDUCED TRAPPING, \*SCOTTKY  
DIODES, CHARGE STORAGE (U)

VARIOUS MULTIVALENT DOPANTS WERE INVESTIGATED WITH  
THE GOAL OF OBTAINING NONVOLATILE MULTILEVEL MEMORY  
DEVICES IN SILICON USING THE FIELD INDUCED  
TRAPPING (FIT) EFFECT. THE TEST STRUCTURES  
INCLUDED SCHOTTKY DIODES AND RESISTIVE BARS  
FABRICATED IN SILICON SUBSTRATES SUITABLY DOPED WITH  
MULTIVALENT DOPANTS. NOVEL DEVICE EFFECTS WERE  
OBSERVED AND ARE DESCRIBED. A MODEL FOR A NEGATIVE  
DIFFERENTIAL RESISTANCE SCHOTTKY BARRIER OSCILLATOR  
IS PROPOSED. OSCILLATIONS WITH FREQUENCIES VOLTAGE  
TURNABLE OVER THREE DECADES WERE OBSERVED. THERMAL  
SWITCHING IN RESISTIVE BARS IS DESCRIBED AND A  
THEORETICAL TREATMENT PRESENTED. TWO SEPARATE  
MODELS EMPLOYING ENTIRELY DIFFERENT MECHANISMS ARE  
ANALYZED. A THEORETICAL TREATMENT ON TRAPPING  
EFFECTS IN P-N JUNCTIONS UNDER LOW INJECTION  
CONDITIONS IS PRESENTED. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A018 341 9/2  
BOLT BERANEK AND NEWMAN INC CAMBRIDGE MASS

A MULTIPROCESSOR DESIGN.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,  
OCT 75 284P BARKER, W. B.  
REPT. NO. BBN-3126  
CONTRACT: DAHC15-69-C-0179, F08606-73-C-0027  
PROJ: ARPA ORDER-2351

UNCLASSIFIED REPORT

DESCRIPTORS: \*MULTIPROCESSORS, \*COMPUTER  
ARCHITECTURE, FAULT TOLERANT COMPUTING, PARALLEL  
PROCESSORS, MEMORY DEVICES, COST EFFECTIVENESS,  
RELIABILITY(ELECTRONICS), ALGORITHMS, DIGITAL  
COMPUTERS, COSTS, POWER

(U)

IDENTIFIERS: DESIGN, PLURIBUS COMPUTERS, CDC  
6600 COMPUTERS, COMPUTER SOFTWARE, ILLIAC 4  
COMPUTERS

(U)

THIS REPORT ADDRESSES THE ISSUES INVOLVED IN THE  
DESIGN OF A MULTIPROCESSOR. THE AUTHOR EXPLORES A  
WIDE RANGE OF DESIGN CONSIDERATIONS AND ARRIVES AT  
JUDGMENTS OF RELATIVE MERIT AT EACH DECISION POINT;  
THE RESULTS OF THESE DECISIONS LEAD TO A PARTICULAR  
MULTIPROCESSOR DESIGN. A REAL MULTIPROCESSOR HAS  
BEEN BUILT TO THIS DESIGN, AND ITS CONFIGURATION AND  
PERFORMANCE ARE DESCRIBED. THIS SYSTEM, THE  
PLURIBUS, HAS MANY ADVANTAGES OVER OTHER COMPUTER  
SYSTEMS IN COST-EFFECTIVENESS, RELIABILITY,  
MODULARITY, AND EXPANSIBILITY. (AUTHOR)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A018 678 9/2  
MARYLAND UNIV COLLEGE PARK DEPT OF COMPUTER SCIENCE

PDP 11/UNIVAC 1108 CROSS ASSEMBLER  
SYSTEM.

(U)

DESCRIPTIVE NOTE: INTERIM TECHNICAL REPT.,  
OCT 75 42P LAY, W. M. STEBBENS, A.  
K. POLLIZZI, J. A.;  
REPT. NO. TR-422  
CONTRACT: N00014-67-A-0239-0032

UNCLASSIFIED REPORT

DESCRIPTORS: \*ASSEMBLERS, \*PROGRAMMING MANUALS,  
COMPUTER PROGRAMMING, MINICOMPUTERS, USER NEEDS,  
COMPUTER FILES, PUNCHED TAPE, DATA STORAGE  
SYSTEMS, SYMBOLS, MODES, COMPUTER ARCHITECTURE,  
MACROPROGRAMMING

(U)

IDENTIFIERS: PDP 11 COMPUTERS, UNIVAC 1100 SERIES  
COMPUTERS

(U)

THIS REPORT IS A USER'S MANUAL FOR THE PDP11  
CROSS ASSEMBLER AND CROSS LINK-EDITOR WHICH RUNS AS  
THE UNIVAC 1100-SERIES MACHINES. THESE PROGRAMS  
ARE DESIGNED TO ACCEPT SOURCE PROGRAMS IN THE SAME  
FORMAT AS THE DEC PROGRAMS WHICH RUN ON THE  
PDP11, BUT WITH CERTAIN MINOR CHANGES. OBJECT  
MODULES PRODUCED BY THESE PROGRAMS IN FILES ON THE  
UNIVAC SYSTEM, PUNCHED ON PAPER TAPE OR TRANSMITTED  
DIRECTLY TO A PDP11 CONNECTED VIA A DATA SET.

(AUTHOR)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A018 734 9/2  
MARYLAND UNIV COLLEGE PARK DEPT OF COMPUTER SCIENCE

AN OVERVIEW OF THE DISTRIBUTED COMPUTER  
NETWORK.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,  
OCT 75 67P MILLS,DAVID L.  
REPT. NO. TR-413  
CONTRACT: N00014-67-A-0239-0032, NSF-GK-41602

UNCLASSIFIED REPORT

DESCRIPTORS: \*DIGITAL COMPUTERS, \*NETWORKS, MEMORY  
DEVICES, MINICOMPUTERS, COMPUTER ARCHITECTURE,  
MAGNETIC DISKS, INTERACTIVE GRAPHICS, COMPILERS,  
COMPUTER FILES, FORTRAN, PROGRAMMING LANGUAGES,  
COMPUTER PROGRAM DOCUMENTATION, RESOURCE MANAGEMENT,  
MULTIPROCESSORS

(U)

IDENTIFIERS: \*COMPUTER NETWORKS, \*DISTRIBUTED  
NETWORKS, PDP 11 COMPUTERS, DISK STORAGE, UNIVAC  
1100 SERIES COMPUTERS, COMPUTER SOFTWARE, VIRTUAL  
MEMORY

(U)

THE DISTRIBUTED COMPUTER NETWORK (DCN) IS A  
RESOURCE-SHARING COMPUTER NETWORK WHICH INCLUDES A  
NUMBER OF DEC PDP11 COMPUTERS. THE DCN  
SUPPORTS A NUMBER OF PROCESSES IN A MULTIPROGRAMMED  
DISTRIBUTED ENVIRONMENT. PROCESSES CAN COMMUNICATE  
WITH EACH OTHER AND INTERFACE WITH THEIR ENVIRONMENT  
IN A MANNER WHICH IS INDEPENDENT OF THEIR RESIDENCE  
WITHIN A PARTICULAR COMPUTER. RESOURCES SUCH AS  
PROCESSORS, DEVICES AND STORAGE MEDIA CAN BE REMOTELY  
ACCESSED AND SHARED SO AS TO PROVIDE INCREASED  
RELIABILITY, FLEXIBILITY AND SYSTEM UTILIZATION.  
THE DCN NOW SUPPORTS SEVERAL PROGRAMMING  
LANGUAGES AND APPLICATIONS PACKAGES. COMMON  
PROGRAMMING LANGUAGES SUCH AS LISP, BASIC AND  
OTHERS, ALONG WITH AN EXTENSIVE LIBRARY OF  
INTERACTIVE GRAPHICS PROCEDURES, CAN BE EXECUTED IN  
PROCESSES WHICH TAKE FULL ADVANTAGE OF THE  
DISTRIBUTED ARCHITECTURE OF THE SYSTEM. MOST OF THE  
COMPONENTS OF THE DISK OPERATING SYSTEM (DOS)  
FOR THE PDP11 CAN BE EXECUTED IN A SPECIAL  
EMULATOR-TYPE VIRTUAL PROCESS NOW BEING CONSTRUCTED  
FOR THIS PURPOSE.

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A018 735 14/5 17/8 9/2  
RCA LABS PRINCETON N.J.

SIGNAL/NOISE RATIO OF HOLOGRAPHIC  
IMAGES. (U)

DESCRIPTIVE NOTE: FINAL REPT. 24 JUN-23 SEP 75.

OCT 75 33P BURKE,W. J. :

REPT. NO. PRRL-75-CR-66

CONTRACT: N00019-75-M-0494

UNCLASSIFIED REPORT

DESCRIPTORS: \*HOLOGRAPHY, \*DATA STORAGE SYSTEMS,  
\*IMAGES, \*HOLOGRAMS, \*SIGNAL TO NOISE RATIO,  
IRON, DOPING, CROSSTALK, SCANNING,  
PHOTOMULTIPLIER TUBES, SPECTRUM ANALYZERS,  
MEASUREMENT, GRAPHICS (U)

IDENTIFIERS: IMAGE SLICERS (U)

THIS REPORT DESCRIBES THE RESULTS OF THE CURRENTLY  
OBTAINABLE SIGNAL/NOISE (S/N) RATIO OF IMAGES  
READOUT FROM THICK PHASE HOLOGRAMS STORED IN IRON-  
DOPED LINBO<sub>3</sub>. USING MULTIPLE OBJECT BEAM  
ILLUMINATION AN S/N RATIO OF APPROXIMATELY 27  
DB WAS MEASURED FOR A WHITE FIELD. NO SIGNIFICANT  
DECREASE IN THE MEASURED S/N RATIO WAS OBSERVED  
WITH THE INCREASING NUMBER OF HOLOGRAMS STORED.  
(AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A019 050 9/2  
COMPUTER SCIENCES CORP PHOENIX ARIZ

RADCOLS COMPUTER SIMULATION MODEL OVERALL  
SYSTEMS SPECIFICATION. VOLUME I. (U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT. JUN 74-JUN 75,  
SEP 75 338P BRAUN, VTHOR ;  
CONTRACT: F30602-74-C-0281  
MONITOR: RADC TR-75-230-VOL-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2, AD-A019  
051.

DESCRIPTORS: \*CENTRAL PROCESSING UNITS, \*COMPUTER  
PROGRAMMING, \*INFORMATION SYSTEMS, SYSTEMS ANALYSIS,  
TIME SHARING, COMPILERS, DATA BASES,  
COMPUTERIZED SIMULATION, MATHEMATICAL MODELS,  
MATHEMATICAL LOGIC, QUEUEING THEORY, INTERFACES,  
SPECIFICATIONS (U)

IDENTIFIERS: SIMSCRIPT 2.5 PROGRAMMING LANGUAGE,  
HONEYWELL 600/6000 COMPUTERS, \*COMPUTER SYSTEMS  
HARDWARE, OPERATING SYSTEMS(COMPUTERS),  
\*COMPUTER PERFORMANCE EVALUATION, RADCOLS  
MODEL (U)

THE RADCOLS (ROME AIR DEVELOPMENT CENTER ON  
LINE SIMULATOR) MODEL IS A SYSTEM WHICH  
SIMULATES A HONEYWELL INFORMATION SYSTEM 600  
OR 6000 COMPUTER COMPLETE WITH ITS GCOS (GENERAL  
COMPREHENSIVE OPERATING SYSTEM) OPERATING  
SYSTEM. THE MODEL EXECUTES ON A HIS 600/6000  
SYSTEM UNDER GCOS AND IS WRITTEN IN SIMSCRIPT  
2.5. THE PRIMARY PURPOSE OF THE RADCOLS MODEL  
IS TO PROVIDE AN EXPERIMENTER WITH A TOOL BY WHICH HE  
MAY REASONABLY PREDICT THE EFFECT OF PROPOSED  
HARDWARE, SOFTWARE AND WORK LOAD CHANGES.  
REPRESENTATION OF THE GCOS MULTI-DIMENSIONAL  
PHILOSOPHY HAS BEEN THE PRIMARY DESIGN GOAL OF  
RADCOLS. THE EXPERIMENTER IS PERMITTED TO  
INTRODUCE INPUT TO THE MODEL WHICH PORTRAYS A  
SPECIFIED WORK LOAD ON THE SYSTEM. JOB GENERATION  
IS ACCOMPLISHED WITHIN THE MODEL VIA DISTRIBUTION  
FACTORS SUBMITTED AS INPUTS UNDER EACH (LOCAL  
BATCH, REMOTE BATCH, AND TSS) WORK LOAD  
CATEGORY. THE MODEL HAS BEEN DESIGNED TO GENERATE  
FOUR SPECIFIC REPORT TYPES: FACILITY  
UTILIZATION, PROCESS DELAY, QUEU BEHAVIOR,  
AND TASK TURNAROUND. (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-AD19 051 9/2  
COMPUTER SCIENCES CORP PHOENIX ARIZ

RADCOLS COMPUTER SIMULATION MODEL OVERALL  
SYSTEMS SPECIFICATION. VOLUME II. FLOW  
CHARTS.

(U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT. JUN 74-JUN 75,  
SEP 75 302P BRAUN,VTHOR I  
CONTRACT: F30602-74-C-0281  
MONITOR: RADC TR-75-230-VOL-2

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: \*CENTRAL PROCESSING UNITS, \*COMPUTER  
PROGRAMMING, \*INFORMATION SYSTEMS, FLOW CHARTING,  
SYSTEMS ANALYSIS, TIME SHARING, COMPILERS, DATA  
BASES, COMPUTERIZED SIMULATION, MATHEMATICAL MODELS,  
MATHEMATICAL LOGIC, QUEUEING THEORY, INTERFACES (U)

IDENTIFIERS: SIMSCRIPT 2.5 PROGRAMMING LANGUAGE,  
HONEYWELL 600/6000 COMPUTERS, \*COMPUTER SYSTEMS  
HARDWARE, OPERATING SYSTEMS(COMPUTERS),  
\*COMPUTER PERFORMANCE EVALUATION, RADCOLS

MODEL

(U)

THE RADCOLS (ROME AIR DEVELOPMENT CENTER ON  
LINE SIMULATOR) MODEL IS A SYSTEM WHICH  
SIMULATES A HONEYWELL INFORMATION SYSTEM 600 OR  
6000 COMPUTER COMPLETE WITH ITS GCOS OPERATING  
SYSTEM. THE MODEL EXECUTES ON A HIS 600/6000  
SYSTEM UNDER GCOS AND IS WRITTEN IN SIMSCRIPT  
2.5. THE PRIMARY PURPOSE OF THE RADCOLS MODEL  
IS TO PROVIDE AN EXPERIMENTER WITH A TOOL BY WHICH HE  
MAY REASONABLY PREDICT THE EFFECT OF PROPOSED  
HARDWARE, SOFTWARE AND WORK LOAD CHANGES.

REPRESENTATION OF THE GCOS MULTI-DIMENSIONAL  
PHILOSOPHY HAS BEEN THE PRIMARY DESIGN GOAL OF  
RADCOLS. THE EXPERIMENTER IS PERMITTED TO  
INTRODUCE INPUT TO THE MODEL WHICH PORTRAYS A  
SPECIFIED WORK LOAD ON THE SYSTEM. JOB GENERATION  
IS ACCOMPLISHED WITHIN THE MODEL VIA DISTRIBUTION  
FACTORS SUBMITTED AS INPUTS UNDER EACH (LOCAL  
BATCH, REMOTE BATCH, AND TSS) WORK LOAD  
CATEGORY. THE MODEL HAS BEEN DESIGNED TO GENERATE  
FOUR SPECIFIC REPORT TYPES: FACILITY  
UTILIZATION, PROCESS DELAY, QUEUE BEHAVIOR,  
AND TASK TURNAROUND.

(U)

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UNCLASSIFIED

/ZOM07

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A019 052 9/2  
COMPUTER SCIENCES CORP PHOENIX ARIZ

RADCOLS COMPUTER SIMULATION MODEL OVERALL  
SYSTEMS SPECIFICATION. VOLUME III. USERS  
MANUAL.

(U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT. JUN 74-JUN 75,  
SEP 75 106P BRAUN, VTHOR ;  
CONTRACT: F30602-74-C-0281  
MONITOR: RADC TR-75-230-VOL-3

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2, AD-A019  
051.

DESCRIPTORS: \*CENTRAL PROCESSING UNITS, \*COMPUTER  
PROGRAMMING, \*INFORMATION SYSTEMS, INSTRUCTION  
MANUALS, SYSTEMS ANALYSIS, TIME SHARING,  
COMPILERS, DATA BASES, COMPUTERIZED SIMULATION,  
MATHEMATICAL MODELS, MATHEMATICAL LOGIC, QUEUEING  
THEORY, INTERFACES

(U)

IDENTIFIERS: SIMSCRIPT 2.5 PROGRAMMING LANGUAGE,  
HONEYWELL 600/6000 COMPUTERS, \*COMPUTER SYSTEMS  
HARDWARE, OPERATING SYSTEMS(COMPUTERS),  
\*COMPUTER PERFORMANCE EVALUATION, RADCOLS  
MODEL

(U)

THE OBJECTIVE OF THIS USERS MANUAL FOR THE  
RADCOLS COMPUTER SIMULATION MODEL IS TO PROVIDE  
THE USER PERSONNEL WITH THE INFORMATION NECESSARY TO  
EFFECTIVELY USE THE MODEL. THIS MANUAL IS  
APPLICABLE TO THREE CLASSES OF USERS:  
EXPERIMENTERS, MODEL DEVELOPERS, AND MODEL  
MAINTAINERS.

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A019 059 9/2 20/1  
CALIFORNIA UNIV BERKELEY DEPT OF ELECTRICAL ENGINEERING  
AND COMPUTER SCIENCES

EXTRACTION OF DERIVATIVES FROM DATA STORED IN  
AN ACOUSTIC MEMORY,

(U)

FEB 75 SP HSU,TZU-HWA ;WHITE,RICHARD  
M. ;  
CONTRACT: DAHC04-74-G-0205  
MONITOR: ARO 5718.14-EL

UNCLASSIFIED REPORT

AVAILABILITY: PUB. IN IEEE TRANSACTIONS ON  
SONICS AND ULTRASONICS, VSU-22 N5 P355-358 SEP  
75.

DESCRIPTORS: \*DATA STORAGE SYSTEMS, \*ACOUSTIC WAVES,  
\*SURFACE WAVES, PIEZOELECTRIC CRYSTALS,  
EXTRACTION, WAVEFORMS, PROPAGATION, REPRINTS

(U)

IDENTIFIERS: \*SURFACE ACOUSTIC WAVES, \*ACOUSTIC  
MEMORIES

(U)

SIMPLE MEANS ARE PROPOSED AND ANALYZED FOR THE  
EXTRACTION OF OUTPUTS PROPORTIONAL TO THE DERIVATIVES  
OF DATA SAMPLES STORED IN THE FORM OF SURFACE  
ACOUSTIC WAVES PROPAGATING ON A PIEZOELECTRIC  
CRYSTAL. EXTRACTION OF THE DERIVATIVES IS DONE BY  
SIMPLY-SHAPED ELECTRODE TRANSDUCERS. A SIMPLE  
PRINCIPLE IS PRESENTED TO PREDICT THE DERIVATIVE  
OUTPUTS FOR VARIOUS SURFACE ACOUSTIC WAVEFORMS.  
COMPUTER ANALYSIS OF THE DEVICES YIELDS TIME  
RESPONSES REVEALING THE DIFFERENCES BETWEEN ADJACENT  
DATA ELEMENTS WITH RESOLUTIONS AS HIGH AS 30 DB.  
COMPARISON WITH EXPERIMENTAL RESULTS IS ALSO MADE.

(AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A019 202 9/2 12/1  
MICHIGAN UNIV ANN ARBOR SYSTEMS ENGINEERING LAB

A STUDY OF INFORMATION IN MULTIPLE-COMPUTER  
AND MULTIPLE-CONSOLE DATA PROCESSING  
SYSTEMS.

(U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT. 1 JUL 72-30  
SEP 75.

NOV 75 44P IRANI,K. B. BAUER,M. F.  
IMULLA,J. MITOMA,M. F. SONNENBURG,C. R.  
CONTRACT: F30602-73-C-0001  
PROJ: AF-5581  
TASK: 558102  
MONITOR: RADC TR-75-276

UNCLASSIFIED REPORT

DESCRIPTORS: \*DATA PROCESSING, \*MATHEMATICAL MODELS,  
INFORMATION PROCESSING, PARALLEL PROCESSORS, DATA  
BASES, COMPUTER PROGRAM DOCUMENTATION, ON LINE  
SYSTEMS, PROGRAMMING LANGUAGES, TIME SHARING,  
MEMORY DEVICES, ASSOCIATIVE PROCESSING

(U)

IDENTIFIERS: COMPUTER HARDWARE, COMPUTER  
SOFTWARE

(U)

THIS FINAL REPORT SUMMARIZES THE ACHIEVEMENTS FROM  
1 JUL 72 TO 30 SEP 75 OF CONTINUING RESEARCH FOR  
THE DEVELOPMENT AND APPLICATION OF MATHEMATICAL  
TECHNIQUES FOR THE ANALYSIS AND OPTIMIZATION OF  
COMPUTER SYSTEMS. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A019 334 9/2  
UNIVERSITY OF SOUTHERN CALIFORNIA MARINA DEL REY  
INFORMATION SCIENCES INST

A KNOWLEDGEABLE, LANGUAGE-INDEPENDENT SYSTEM  
FOR PROGRAM CONSTRUCTION AND MODIFICATION. (U)

DESCRIPTIVE NOTE: RESEARCH REPT.,  
OCT 75 68P YONKE, MARTIN D. I  
REPT. NO. ISI/RR-75-42  
CONTRACT: DAHC15-72-C-0308, ARPA ORDER-2223

UNCLASSIFIED REPORT

DESCRIPTORS: \*COMPUTER PROGRAMMING, \*PROGRAMMING  
LANGUAGES, SYSTEMS ANALYSIS, SYNTAX, SEMANTICS,  
ALGORITHMS (U)  
IDENTIFIERS: \*COMPUTER PROGRAM RELIABILITY, LOGIC  
DESIGN, STRUCTURED PROGRAMMING, PARSING (U)

THE NEED OF A LANGUAGE-INDEPENDENT PROGRAMMING  
ENVIRONMENT WITH KNOWLEDGEABLE FACILITIES IS  
EXPLICATED. THEN THE DESIGN OF A LANGUAGE-  
INDEPENDENT SYSTEM FOR 'INTELLIGENT' CREATION AND  
MODIFICATION OF PROGRAMS AS AN EXAMPLE OF SUCH A  
FACILITY. THIS SYSTEM, CALLED THE PROGRAM  
CONSTRUCTOR AND MODIFIER, IS A TWO-STAGE PROCESS.  
IN THE FIRST STAGE, AN 'EXPERT' CREATES A  
DESCRIPTION OF A PROGRAMMING LANGUAGE IN A HIGH-LEVEL  
FORMALISM. THIS DESCRIPTION IS USED IN CONJUNCTION  
WITH THE UNDERLYING MODEL OF PROGRAMMING LANGUAGES TO  
DRIVE THE SECOND STAGE, IN WHICH THE GENERAL USER  
CREATES AND MODIFIES PROGRAMS WRITTEN IN THE  
PARTICULAR PROGRAMMING LANGUAGE. THIS MODEL WILL  
GUARANTEE THAT THROUGHOUT THE INTERACTION THE PROGRAM  
IS SYNTACTICALLY ERROR-FREE AND -- AS FAR AS POSSIBLE  
WITHOUT EXECUTING THE PROGRAM -- WILL GUARANTEE  
CERTAIN SEMANTIC CONSISTENCIES. ALL METHODS  
ASSOCIATED WITH THIS MODEL ARE ORIENTED TOWARDS ERROR  
PREVENTION WHILE STILL ALLOWING THE USER 'FREE-FORM'  
PROGRAM INPUT. THESE METHODS WILL ALSO  
AUTOMATICALLY CORRECT CERTAIN CLASSES OF ERRORS SUCH  
AS MISSPELLED WORDS AND OMITTED TERMINAL SYMBOLS OF  
CERTAIN TYPES AND WILL INTERACT WITH THE USER TO GAIN  
INFORMATION WHEN THERE IS INSUFFICIENT KNOWLEDGE FOR  
AUTOMATIC CORRECTION. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A019 661 9/2  
CARNEGIE-MELLON UNIV PITTSBURGH PA DEPT OF COMPUTER  
SCIENCE

SEMANTIC MODELS FOR PARALLEL SYSTEMS. (U)

DESCRIPTIVE NOTE: INTERIM REPT.,  
JAN 75 34P COHEN, ELLIS S. I  
CONTRACT: F44620-73-C-0074, ARPA ORDER-2466  
MONITOR: AFOSR TR-75-1675

UNCLASSIFIED REPORT

DESCRIPTORS: \*PARALLEL PROCESSING, \*PARALLEL  
PROCESSORS, \*PROGRAMMING LANGUAGES, SEMANTICS,  
COMPUTER PROGRAMMING, MODELS, SCHEDULING,  
PROTECTION (U)

THIS PAPER PRESENTS A SEMANTIC MODEL FOR PARALLEL  
SYSTEMS WITH A SCHEDULING MECHANISM THAT IS USEFUL  
FOR EXPRESSING AND PROVING A WIDER RANGE OF  
PROPERTIES THAN SEMANTIC MODELS WHICH DO NOT CONSIDER  
SCHEDULING. WE FORMALLY DESCRIBE A NUMBER OF  
PROPERTIES RELATED TO SCHEDULING AND DEADLOCK,  
INCLUDING 'FAIRNESS' AND 'FULLNESS', AND SHOW  
THAT SCHEDULERS WITH THESE PROPERTIES BEHAVE IN  
DESIREABLE WAYS. LASTLY, WE PROVE AND CONJECTURE  
SOME PROOF RULES FOR SCHEDULED SYSTEMS AND OUTLINE  
BRIEFLY THE RELATION OF THIS WORK TO MODELLING  
PROTECTION IN PARALLEL SYSTEMS. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A019 897 8/11 9/2  
COMPUTER CORP OF AMERICA CAMBRIDGE MASS

DATA COMPUTER SUPPORT OF SEISMIC DATA  
ACTIVITY.

(U)

DESCRIPTIVE NOTE: QUARTERLY TECHNICAL REPT. 1 MAY-31  
JUL 75.

JUL 75 19P

CONTRACT: MDA903-74-C-0227, ARPA ORDER-2613

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO REPORT DATED 30 MAY 75,  
AD-A010 556.

DESCRIPTORS: \*SEISMIC DATA, \*DATA PROCESSING,  
\*DATA STORAGE SYSTEMS, INFORMATION RETRIEVAL,  
COMPUTER PROGRAMMING, COMMUNICATIONS NETWORKS,  
INTERFACES

(U)

IDENTIFIERS: ARPA COMPUTER NETWORK, COMPUTER  
NETWORKS, SEISMIC INPUT PROCESSORS

(U)

THE PURPOSE OF THIS PROJECT IS TO SUPPORT THE  
ARPA-NMRO SEISMIC DATA ACTIVITY BY PROVIDING  
DATA STORAGE AND RETRIEVAL SERVICES. THE ARPANET  
WILL BE USED AS THE PRIMARY COMMUNICATIONS CHANNEL.  
AS PART OF THE SERVICE, SEISMIC DATA WILL BE  
(A) RECEIVED FROM THE ARPANET; (B) STORED  
AND INDEXED IN THE DATA COMPUTER; AND (C) MADE  
AVAILABLE TO COMPUTERS ON THE ARPANET IN A  
CONVENIENT AND TIMELY MANNER. THESE SERVICES  
REPRESENT A SPECIAL APPLICATION OF THE ARPANET  
DATA COMPUTER BEING DEVELOPED AND MAINTAINED BY  
COMPUTER CORPORATION OF AMERICA (CCA) UNDER  
CONTRACT.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A019 961 8/11 9/2  
COMPUTER CORP OF AMERICA CAMBRIDGE MASS

DATACOMPUTER SUPPORT OF SEISMIC DATA  
ACTIVITY.

(U)

DESCRIPTIVE NOTE: QUARTERLY TECHNICAL REPT. 1 AUG-31  
OCT 75.

OCT 75 19P  
CONTRACT: MDA903-74-C-0227, ARPA ORDER-2613

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO REPORT DATED 31 JUL 75,  
AD-A019 897.

DESCRIPTORS: \*SEISMIC DATA, \*DATA PROCESSING,  
\*DATA STORAGE SYSTEMS, INFORMATION RETRIEVAL,  
COMPUTER PROGRAMMING, COMMUNICATIONS NETWORKS,  
INTERFACES

(U)

IDENTIFIERS: ARPA COMPUTER NETWORK, COMPUTER  
NETWORKS, SEISMIC INPUT PROCESSORS

(U)

THE PURPOSE OF THIS PROJECT IS TO SUPPORT THE  
ARPA-NMRO SEISMIC DATA ACTIVITY BY PROVIDING DATA  
STORAGE AND RETRIEVAL SERVICES. THE ARPANET WILL  
BE USED AS THE PRIMARY COMMUNICATIONS CHANNEL. AS  
PART OF THE SERVICE, SEISMIC DATA WILL BE (A)  
RECEIVED FROM THE ARPANET; (B) STORED AND  
INDEXED IN THE DATACOMPUTER; AND (C) MADE  
AVAILABLE TO COMPUTERS ON THE ARPANET IN A  
CONVENIENT AND TIMELY MANNER. THE AMOUNT OF SEISMIC  
DATA TO BE STORED REQUIRES THE ADDITION OF A MASS  
MEMORY TO THE DATACOMPUTER SYSTEM. AN AMPEX  
TERABIT MEMORY SYSTEM (TBM) WITH A CAPACITY  
OF ALMOST TWO HUNDRED BILLION BITS WILL BE INSTALLED  
AT CCA IN JANUARY 1976 TO ANSWER THIS NEED. THE  
OTHER HARDWARE ITEM VITAL TO THIS PROJECT, BESIDES  
THE TBM, IS A SMALL SEISMIC INPUT PROCESSOR  
(SIP).

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A020 051 9/2  
CARNEGIE-MELLON UNIV PITTSBURGH PA DEPT OF COMPUTER  
SCIENCE

PROGRAMMING THE ILLIAC IV,

(U)

NOV 75 42P STEVENSON, DAVID K. ;  
CONTRACT: N00014-67-A-0314-0010, NSF-GJ-32111  
PROJ: NR-044-422

UNCLASSIFIED REPORT

DESCRIPTORS: \*COMPUTER PROGRAMMING, \*COMPUTER  
ARCHITECTURE, \*PARALLEL PROCESSING, \*PARALLEL  
PROCESSORS, MULTIPROCESSORS, DATA BASES, MACHINE  
CODING, BUFFER STORAGE, ARITHMETIC UNITS, INPUT  
OUTPUT PROCESSING, HIGH LEVEL LANGUAGES, ALGORITHMS,  
LINEAR SYSTEMS (U)

IDENTIFIERS: ILLIAC 4 COMPUTER, DISC STORAGE (U)

A SIMPLE MODEL OF PARALLEL COMPUTATION IS A SINGLE  
INSTRUCTION STREAM CONTROLLING A MULTIPLE PROCESSOR  
CONFIGURATION. PROGRAMS FOR SUCH COMPUTERS ENTAIL A  
HOST OF CONSIDERATIONS ABSENT FROM PROGRAMS FOR A  
CONVENTIONAL SEQUENTIAL COMPUTER. THIS PAPER  
EXPLORES THE MAIN CONSIDERATIONS IN USING SUCH A  
COMPUTER, LARGELY IN TERMS OF THE ILLIAC 4. IT  
DEALS WITH GROSS SYSTEM CHARACTERISTICS AND HOW THEY  
AFFECT THE SUITABILITY OF VARIOUS PROBLEM  
FORMULATIONS, PARALLEL PROGRAMS STRUCTURES AND DATA  
REPRESENTATIONS, AND CODING STRATEGIES AND  
TECHNIQUES. THE PAPER IS SELF-CONTAINED IN THAT IT  
DOES NOT REQUIRE ANY PREVIOUS KNOWLEDGE OF THE  
ILLIAC; IT SHOULD BE OF INTEREST BOTH TO THE  
GENERAL COMPUTING COMMUNITY AS A SURVEY OF PRACTICAL  
ASPECTS OF PARALLEL COMPUTATION AND TO THOSE ACTUALLY  
CONTEMPLATING USING THE ILLIAC. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A020 073 5/2 5/1 5/9  
PRC INFORMATION SCIENCES CO MCLEAN VA

AIR FORCE MILITARY PERSONNEL CENTER  
MICROFORM SYSTEM. EXECUTIVE SUMMARY. (U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT. 1 JAN-15 MAY  
75.

NOV 75 3SP GARNER, J. K. GILBERT, B.  
H. PERRY, D. R. CATHCART, J. T.  
CONTRACT: F30602-71-C-0157  
MONITOR: RADC TR-75-248-VOL-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2, AD-A020  
074.

DESCRIPTORS: \*AIR FORCE PERSONNEL, \*RECORDS,  
\*DATA STORAGE SYSTEMS, MICROFORM, INFORMATION  
RETRIEVAL, COMPUTERS, PERSONNEL MANAGEMENT (U)

THIS DOCUMENT IS THE FIRST VOLUME OF A TWO-VOLUME  
FINAL REPORT ON THE DESIGN, DEVELOPMENT,  
IMPLEMENTATION AND TEST AND EVALUATION OF THE AFMPC  
MICROFORM SYSTEM. THIS VOLUME PRESENTS A SUMMARY  
OF THE DETAIL AND SUPPORTING DATA OF THAT PRESENTED  
IN VOLUME II. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A020 074 5/2 5/1 5/9  
PRC INFORMATION SCIENCES CO MCLEAN VA

AIR FORCE MILITARY PERSONNEL CENTER  
MICROFORM SYSTEM. SYSTEM DESCRIPTION.  
TEST AND EVALUATION RESULTS.

(U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT. 1 JAN 71-15  
MAY 75,

NOV 75 224P GARNER,J. K. GILBERT,B.  
H. PERRY,D. R. CATHCART,J. T.  
CONTRACT: F30602-71-C-0157  
MONITOR: RADC TR-75-248-VOL-2

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME I, AD-A020  
073.

DESCRIPTORS: \*AIR FORCE PERSONNEL, \*RECORDS,  
\*DATA STORAGE SYSTEMS, MICROFORM, INFORMATION  
RETRIEVAL, COMPUTERS, MANAGEMENT, COST ANALYSIS (U)

THIS DOCUMENT IS THE SECOND VOLUME OF A TWO-VOLUME  
FINAL REPORT ON THE DESIGN, DEVELOPMENT,  
IMPLEMENTATION AND TEST AND EVALUATION OF THE AFMPC  
MICROFORM SYSTEM. THIS VOLUME PRESENTS DETAIL  
DESCRIPTION AND SUPPORTING DATA AND ANALYSIS OF THE  
MICROFORM SYSTEM. THE MICROFORM SYSTEM IS  
A DOCUMENT STORAGE AND RETRIEVAL SYSTEM IN WHICH  
PHOTOGRAPHICALLY REDUCED IMAGES OF THE AIR FORCE  
PERSONNEL RECORDS, WHICH MUST BE RETAINED UNDER  
TITLE 44 OF THE U.S. CODE, ARE MAINTAINED AND  
MANAGED. THE CONVERSION AND MAINTENANCE PROCESS  
AND THE RETRIEVAL AND DISSEMINATION PROCESS ARE  
COMPLETELY DESCRIBED. SYSTEM OPERATIONAL COST FOR  
CURRENT OPERATION LEVELS AS WELL AS MAXIMUM OPERATION  
COSTS ARE PRESENTED. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A020 136 9/2  
ILLINOIS UNIV AT URBANA-CHAMPAIGN COORDINATED SCIENCE  
LAB

DESIGN OF FAIL-SAFE ASYNCHRONOUS SEQUENTIAL  
MACHINES. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,  
JAN 76 88P FAN-YU-DAR;  
REPT. NO. R-713, UILU-ENG-76-2201  
CONTRACT: DAAB07-72-C-0259

UNCLASSIFIED REPORT

DESCRIPTORS: \*CENTRAL PROCESSING UNITS, \*COMPUTER  
PROGRAMMING, \*FAIL SAFE, LOGIC CIRCUITS,  
GATES(CIRCUITS), COMPUTER PROGRAMS,  
ASYNCHRONOUS SYSTEMS, THESES (U)

IDENTIFIERS: FAULT TOLERANT COMPUTING,  
ASYNCHRONOUS SEQUENTIAL CIRCUITS, \*SEQUENTIAL  
MACHINES, DESIGN (U)

FAIL-SAFE DESIGNS ARE COMMONLY CLASSIFIED AS 0-  
FAIL-SAFE OR 1-FAIL-SAFE DESIGNS, WHERE THE INDICATED  
BINARY SIGNAL IS CONSIDERED THE 'SAFE' VALUE AND IS  
PRODUCED IN CASE OF FAILURES, AND N-FAIL-SAFE  
DESIGNS, WHERE BOTH OF THE SIGNALS 0 AND 1 ARE  
CONSIDERED RELIABLE AND A DISTINCT THIRD SYMBOL, N,  
IS PRODUCED IN CASE OF FAILURES IN THE CIRCUIT.  
TWO METHODS FOR THE FAIL-SAFE DESIGN OF  
ASYNCHRONOUS SEQUENTIAL MACHINES ARE PRESENTED IN  
THIS PAPER: IN THE FIRST METHOD, ORDINARY BINARY  
LOGIC ELEMENTS ARE USED IN THE REALIZATION. SIGNALS  
ARE DUPLICATED TO GUARANTEE THE SAFE VALUE OF THE  
OUTPUT IN THE 0-FAIL-SAFE OR 1-FAIL-SAFE CASE, AND A  
NEW STATE ASSIGNMENT METHOD IS USED IN THE N-FAIL-  
SAFE CASE. IN THE SECOND METHOD, COMPLETE SETS OF  
'FAIL-SAFE LOGIC ELEMENTS' ARE DESIGNED FIRST AND  
THEN ASSEMBLED INTO FAIL-SAFE REALIZATIONS. FOR  
THE N-FAIL-SAFE CASE, TWO APPROACHES ARE  
DISCUSSED: ONE USES THREE-VALUED LOGIC, THE OTHER  
USES A BINARY ENCODING. THE APPROPRIATE CHECKING  
CIRCUITS ARE ALSO DESIGNED SO THAT FAULTS ARE  
INDICATED BEFORE THE CAPABILITIES OF THE DESIGNS ARE  
EXCEEDED. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A020 333 14/5  
RANGE COMMANDERS COUNCIL WHITE SANDS MISSILE RANGE N MEX  
DATA REDUCTION AND COMPUTING GROUP

MICROFICHE GUIDE.

(U)

DESCRIPTIVE NOTE: FINAL REPT.

SEP 75 339P  
REPT. NO. DR/CG-131-75

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SECTION 7 ATTACHMENTS AVAILABLE IN  
MICROFICHE ONLY FROM RANGE COMMANDERS COUNCIL  
ATTN: STEWS-SA-R. WHITE SANDS MISSILE  
RANGE, N. MEX. 88002.

DESCRIPTORS: \*MICROFICHE, \*DATA STORAGE SYSTEMS,  
\*INFORMATION RETRIEVAL, \*HANDBOOKS, UTILIZATION,  
MANAGEMENT INFORMATION SYSTEMS, EFFICIENCY,  
FILES(RECORDS), DATA REDUCTION, LOW COSTS,  
PHOTOGRAPHIC FILM, STANDARDS, STANDARDIZATION,  
ALPHANUMERIC DATA, DIGITAL COMPUTERS, MAGNETIC  
RECORDING SYSTEMS, INPUT OUTPUT PROCESSING,  
SPECIFICATIONS, DOCUMENTS

(U)

IDENTIFIERS: \*COMPUTER OUTPUT MICROFILM  
RECORDERS, COM(COMPUTER OUTPUT MICROFILM)

(U)

MICROFICHE IS A NEW INFORMATION MEDIA AND ITS  
ADVANTAGES ARE EXTENDED BY USING NEW CONCEPTS FOR  
INFORMATION STORAGE AND RETRIEVAL. MICROFICHE IS AN  
EFFICIENT AND COST EFFECTIVE DEVICE FOR INFORMATION  
DISTRIBUTION. MICROFICHE IS CONVENIENT AND  
VERSATILE FOR THE USER AND IS CAPABLE OF  
CONSOLIDATING MANY TYPES OF DATA (SOURCE DOCUMENTS,  
COMPUTER OUTPUT, CHARTS AND MAPS, STRIP CHARTS,  
OSCILLOGRAPHS, PHOTOGRAPHS, PICTURES, DRAWINGS,  
SKETCHES, GRAPHS, ETC., IN BOTH BLACK AND WHITE OR  
COLOR) INTO A SINGLE, COMPACT, RANDOMLY ACCESSIBLE  
DATA FILE. THIS PUBLICATION PROVIDES GENERAL  
MICROFICHE INFORMATION AND GUIDELINES FOR THE  
DEVELOPMENT OF A MICROFICHE SYSTEM. METHODS AND  
PROCEDURES FOR GENERATING AND DUPLICATING MICROFICHE  
ARE PUBLISHED IN DETAIL ALONG WITH PROBLEMS THAT MAY  
BE ENCOUNTERED. FEATURES AND ADVANTAGES OF  
MICROFICHE FOR INFORMATION RECORDING, DISTRIBUTION,  
AND RETRIEVAL ARE DESCRIBED. SPECIFICATIONS FOR  
STANDARD MICROFICHE FORMATS ARE DESCRIBED IN DETAIL  
ALONG WITH REASONS FOR USING STANDARD FORMATS.  
DETAILS FOR IMPLEMENTING AND OPERATING A COMPLETE  
SYSTEM ARE PROVIDED. A COMPLETE SYSTEM INTEGRATES  
THE THREE BASIC TYPES OF MICROFICHE;

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A020 426 8/5 9/2  
DEFENSE MAPPING AGENCY AEROSPACE CENTER ST LOUIS AIR FORCE  
STATION MO

HOLDINGS, STORAGE AND RETRIEVAL OF DOD  
GRAVITY LIBRARY DATA.

(U)

SEP 75 42P DOTSON, LARRY L. REINHOLTZ,  
EDWARD B. ;  
REPT. NO. DMAAC/RP-75-003

UNCLASSIFIED REPORT

DESCRIPTORS: \*GRAVITY, \*DATA STORAGE SYSTEMS,  
\*INFORMATION RETRIEVAL, GEODESY, COMPUTER

APPLICATIONS, MAGNETIC TAPE

(U)

IDENTIFIERS: UNIVAC 1108 COMPUTERS, FILE  
MAINTENANCE

(U)

THE DEPARTMENT OF DEFENSE (DOD) GRAVITY  
LIBRARY, MAINTAINED BY THE DEFENSE MAPPING  
AGENCY AEROSPACE CENTER, HAS GROWN FROM A SMALL  
CARD STORAGE FILE TO A MASSIVE DATA FILE CONTAINED ON  
MAGNETIC TAPES. IN THE GROWTH PROCESS, THE LIBRARY  
HAS PROGRESSED FROM THE USE OF A VARIOUS ASSORTMENT  
OF CARD PROCESSING EQUIPMENT TO THE USE OF A UNIVAC  
1108 COMPUTER SYSTEM. THE TREMENDOUS INCREASE IN  
HOLDINGS AND REQUIREMENTS NECESSITATED THE  
ESTABLISHING OF STANDARD FORMATS FOR ALL GRAVITY AND  
RELATED DATA. THE RECEIPT OF DATA IN VARIOUS FORMS  
AND THE REDUCTION OF THIS DATA TO A COMMON FORM MADE  
IT NECESSARY TO DEVELOP IMPROVED PROCESSING  
TECHNIQUES FOR INPUTTING NEW DATA. VOLUMINOUS  
RETRIEVAL AND MAINTENANCE OF AUTOMATED DATA REQUIRED  
IMPROVED TECHNIQUES WHEN ADDRESSING INQUIRIES TO SUCH  
LARGE FILES. THIS REPORT IS INTENDED TO EXPLAIN  
THE HOLDINGS, SYSTEM OF STORAGE, MAINTENANCE OF FILES  
AND RETRIEVAL OF DATA.

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A020 480 17/2 9/2  
BOLT BERANEK AND NEWMAN INC CAMBRIDGE MASS

INTERFACE MESSAGE PROCESSORS FOR THE ARPA  
COMPUTER NETWORK.

(U)

DESCRIPTIVE NOTE: QUARTERLY TECHNICAL REPT, NO. 4, 1  
OCT-31 DEC 75.

JAN 76 30P HEART,FRANK ;  
REPT. NO. BBN-3236  
CONTRACT: F08606-75-C-0032, ARPA ORDER-2351

UNCLASSIFIED REPORT

DESCRIPTORS: \*MESSAGE PROCESSING, \*SATELLITE  
COMMUNICATIONS, DIGITAL COMPUTERS, INPUT OUTPUT  
DEVICES, NETWORKS, INTERFACES, MAINTENANCE,  
BUFFER STORAGE, COMPUTER PROGRAMS, ADDRESSING  
IDENTIFIERS: STORE AND FORWARD COMMUNICATIONS

(U)

(U)

THE ARPA COMPUTER NETWORK IS A PACKET-  
SWITCHING STORE-AND-FORWARD COMMUNICATIONS SYSTEM  
DESIGNED FOR USE BY COMPUTERS AND COMPUTER TERMINALS.  
THIS QUARTERLY TECHNICAL REPORT BRIEFLY  
DESCRIBES VARIOUS ASPECTS OF NETWORK OPERATION AND  
MAINTENANCE, INCLUDING IMP SOFTWARE MODIFICATIONS  
TO PERMIT MORE THAN 63 IMPS ON THE NET AND MORE  
THAN 4 HOST COMPUTERS ON AN IMP, AND SHIPMENT OF  
THE FIRST PRIVATE LINE INTERFACE TO THE FIELD;  
AND DISCUSSES IN SOME DETAIL THE NEW TIP SOFTWARE  
TO BE RELEASED SHORTLY, THE PACKET SATELLITE  
DEMONSTRATION AND SATELLITE IMP ACTIVITIES, AND  
RECENT DEVELOPMENT IN PLURIBUS TECHNOLOGY, PLUS A  
SUMMARY OF ACCOMPLISHMENTS TO DATE IN THE LATTER  
ARFA.

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A020 515 9/2 12/1  
GEORGIA UNIV ATHENS DEPT OF STATISTICS AND COMPUTER  
SCIENCE

AN INTERACTIVE WORKSHEET SYSTEM FOR  
STATISTICAL USAGE.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,  
AUG 75 298P BINGHAM,STEPHEN F. ;  
BARGMANN,ROLF E. ;  
REPT. NO. TR-106, THEMIS-UGA-31  
CONTRACT: N00014-69-A-0423  
PROJ: NR-042-261

UNCLASSIFIED REPORT

DESCRIPTORS: \*INTERACTIVE GRAPHICS, \*COMPUTER  
GRAPHICS, \*STATISTICS, COMPUTER PROGRAMMING, DATA  
PROCESSING TERMINALS, MULTIVARIATE ANALYSIS,  
SUBROUTINES, COMPUTER PROGRAMS, DIGITAL  
COMPUTERS

(U)

IDENTIFIERS: CONVERSATIONAL COMPUTATION, OMNITAB  
COMPUTER PROGRAM, WORKSHEETS, IBM 360 COMPUTERS,  
IBM 370 COMPUTERS

(U)

THIS REPORT DISCUSSES THE IMPLEMENTATION OF AN  
INTERACTIVE VERSION OF THE NATIONAL BUREAU OF  
STANDARD'S OMNITAB SYSTEM. THIS VERSION HAS  
BEEN ADOPTED TO WORK UNDER A GRAPHICS MONITOR  
SYSTEM ON AN IBM 2250 TERMINAL, CONNECTED TO AN  
IBM 360 OR 370 CENTRAL PROCESSOR. SEVERAL  
ROUTINES HAVE BEEN ADDED OR ADAPTED WHICH MAKE THE  
SYSTEM ESPECIALLY USEFUL FOR STATISTICAL  
APPLICATIONS, AND AS AN INSTRUCTIONAL TOOL. THE  
IMMEDIATE AVAILABILITY OF DISPLAYS OF SECTIONS OF THE  
WORKSHEET, AFTER EACH INSTRUCTION IS THE CENTRAL  
FEATURE OF THIS ADAPTATION. SEVERAL EXAMPLES OF  
STATISTICAL APPLICATIONS ARE INCLUDED IN THIS REPORT.  
(AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A020 650 9/2 17/2  
WHARTON SCHOOL OF FINANCE AND COMMERCE PHILADELPHIA PA  
DEPT OF DECISION SCIENCES (MANAGEMENT)

DYNAMIC MODEL FOR DISTRIBUTED DATA-  
BASES.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,  
APR 75 34P LEVIN,KATRIEL DAN MORGAN,  
HOWARD LEE ;  
REPT. NO. 75-04-01  
CONTRACT: N00014-75-C-0462

UNCLASSIFIED REPORT

DESCRIPTORS: \*DATA BASES, \*DATA STORAGE SYSTEMS,  
\*FILES(RECORDS), \*DATA TRANSMISSION SYSTEMS,  
SITE SELECTION, DIGITAL COMPUTERS, COMPUTER  
PROGRAMS, ACCESS, OPTIMIZATION, COSTS

(U)

IDENTIFIERS: \*COMPUTER NETWORKS, \*DISTRIBUTED DATA  
BASES, DYNAMIC OPTIMIZATION

(U)

A MULTI-PERIOD MODEL OF PROGRAMS AND DATA FILE  
ASSIGNMENT IN COMPUTER NETWORKS IS PRESENTED. IN  
REALITY, ACCESS REQUEST PATTERNS ARE SUBJECT TO  
CHANGE OVER TIME, THUS, AN OPTIMAL FILE ASSIGNMENT AT  
ONE PERIOD IS NO LONGER OPTIMAL IN THE NEXT PERIOD.  
AN OPTIMIZING PROCEDURE FOR THE ASSIGNMENT OF  
PROGRAMS AND DATA FILES OVER TIME IS SUGGESTED.  
THIS PROCEDURE, TAKES INTO ACCOUNT BOTH THE  
DEPENDENCIES BETWEEN PROGRAMS AND DATA FILE AND THE  
TRANSITION COSTS INCURRED BY FILE MOVEMENTS FROM ONE  
ASSIGNMENT AT A GIVEN PERIOD TO ANOTHER ASSIGNMENT AT  
THE NEXT PERIOD. (AUTHOR)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A020 746 9/2  
STANFORD UNIV CALIF DIGITAL SYSTEMS LAB

SYSTEM/360 EMULATOR PERFORMANCE ESTIMATE.

(U)

DESCRIPTIVE NOTE: TECHNICAL NOTE,  
NOV 75 14P WALLACH,WALTER A. , JR;  
REPT. NO. TN-66  
CONTRACT: AF-AFOSR-2865-75, AT(04-3)-326  
PROJ: AF-9769  
TASK: 976902  
MONITOR: AFOSR TR-76-0018

UNCLASSIFIED REPORT

DESCRIPTORS: \*COMPUTER PROGRAMS, \*COMPUTER ARCHITECTURE, MICROPROGRAMMING, PERFORMANCE, ESTIMATES, BUS CONDUCTORS, MAPPING, MEMORY DEVICES, TIME, ACCESS

(U)

IDENTIFIERS: \*EMULATORS(COMPUTERS), EMMY COMPUTER PROGRAM, IBM 360 COMPUTERS, TIMING, MICROINSTRUCTIONS

(U)

THIS NOTE DESCRIBES THE PERFORMANCE AND INSTRUCTION TIMING OF THE SYSTEM/360 EMULATORS FOR EMMY. GENERAL EMULATOR STRUCTURE AND FLOW ARE INCLUDED IN A PREVIOUS REPORT. A DETAILED DESCRIPTION OF THE FINAL COMPLETE CLASS B EMULATOR WILL BE THE SUBJECT OF A LATER REPORT. THE STANFORD EMMY WILL EMULATE TYPICAL 360 INSTRUCTION STREAMS AT ABOUT 97KIPS. A PRODUCTION (MODEL 2 CONTROL STORE) EMMY WILL ACHIEVE 143KIPS ON THE SAME INSTRUCTION STREAM. A 360 MODEL 50 PROCESSES THIS STREAM AT ABOUT 141KIPS. MINOR MODIFICATIONS TO THE STANFORD MACHINE SHOULD ENABLE IT TO ACHIEVE 120KIPS. (AUTHOR)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A020 926 9/2

NAVAL SURFACE WEAPONS CENTER WHITE OAK LAB SILVER SPRING  
MD

PROGRESS TOWARD THE CROSSTIE MEMORY  
III.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT. OCT 74-OCT 75,  
OCT 75 38P SCHWEE,L. J. ;IRONS,H.  
R. ANDERSON,W. E. ;SERY,R. S. ;VAN SANT,  
O. J., JR;  
REPT. NO. NSWC/WOL/TR-75-167  
PROJ: MAT-03L-000/ZF61-512-001

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-A002 980.

DESCRIPTORS: \*BLOCK ORIENTED RANDOM ACCESS MEMORIES,  
\*RANDOM ACCESS COMPUTER STORAGE, \*THIN FILM STORAGE  
DEVICES, SHIFT REGISTERS, KERR MAGNETOOPTICAL  
EFFECT, MAGNETIC DOMAINS, DOMAIN WALLS,  
MICROELECTRONICS, SUBSTRATES

(U)

IDENTIFIERS: MAGNETIC FILM MEMORIES, MAGNETIC  
BUBBLE DOMAINS, \*CROSSTIE MEMORIES,  
MAGNETORESISTIVITY

(U)

THIS IS THE THIRD ANNUAL TECHNICAL REPORT OF  
PROGRESS TOWARD THE CROSSTIE MEMORY AND EMPHASIZES  
THE WORK DONE DURING THE PAST YEAR. IN THE CROSSTIE  
MEMORY, INFORMATION IS STORED IN MAGNETIC DOMAIN  
WALLS RATHER THAN DOMAINS AND DOMAIN WALL MOTION IS  
NOT USED IN ITS OPERATION. THE BASIC BUILDING BLOCK  
OF THE CROSSTIE MEMORY IS A MAGNETIC SHIFT REGISTER  
WHICH DEPENDS ON BLOCH LINE MOTION RATHER THAN  
DOMAIN WALL MOTION. THE CROSSTIE MEMORY IS INTENDED  
FOR USE AS A BLOCK ORIENTED RANDOM ACCESS MEMORY  
(BDRAM) OR FAST AUXILIARY MEMORY (FAM). THE  
ADVANTAGES OF THE CROSSTIE MEMORY ARE SPEED, LOW  
POWER, HIGH BIT DENSITY, NONVOLATILITY, A WIDE  
TEMPERATURE RANGE OF OPERATION, LOW COST, AND USE OF  
AVAILABLE TECHNOLOGY. THERE WERE TWO MAJOR  
ACCOMPLISHMENTS THIS PAST YEAR. ONE IS THE  
MAGNETORESISTANCE DETECTOR, THE SECOND IS THE  
SERRATED TRACK WHICH SIMPLIFIES PROPAGATION,  
DETECTION, AND FABRICATION. PRESENT PROBLEM AREAS  
AND APPROACHES TO THEIR SOLUTION ARE DISCUSSED.  
PLANS AND DESIGN GOALS ARE ALSO PRESENTED.

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A021 148 9/2  
STANFORD UNIV CALIF DIGITAL SYSTEMS LAB

FUNCTIONAL DESCRIPTION OF THE EMMY MAIN  
MEMORY SYSTEM. (U)

DESCRIPTIVE NOTE: TECHNICAL NOTE,  
AUG 75 16P NEUHAUSER,CHARLES ;  
REPT. NO. TN-57  
CONTRACT: AF-AFOSR-2865-75, AT(04-3)-326  
PROJ: AF-9769  
TASK: 976902  
MONITOR: AFOSR TR-76-0016

UNCLASSIFIED REPORT

DESCRIPTORS: \*MEMORY DEVICES, CENTRAL PROCESSING  
UNITS, BYTE FUNCTIONAL MODULES, FUNCTIONS, BUS  
CONDUCTORS, COMPUTER PROGRAMS, ERRORS, INTERFACES,  
ACCESS, PROGRAMMERS (U)

IDENTIFIERS: \*EMULATORS(COMPUTERS), EMMY  
COMPUTER PROGRAM (U)

THIS DOCUMENT GIVES THE FUNCTIONAL DESCRIPTION OF  
AN EMULATION ORIENTED MAIN MEMORY SYSTEM FOR USE ON  
THE EMMY BUS SYSTEM. THE MAIN MEMORY SYSTEM  
CONSISTS OF A BYTE ADDRESSABLE CORE MEMORY SYSTEM AND  
A MEMORY CONTROLLER WHICH PERFORMS ELEMENTARY  
TRANSFORMATIONS ON ADDRESS AND DATA UNDER CPU  
CONTROL. (AUTHOR) (U)

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UNCLASSIFIED

/ZOM07

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A021 232 9/2 15/3  
ROME AIR DEVELOPMENT CENTER GRIFFISS AFB N Y

AN ASSOCIATIVE PROCESSOR APPLICATION  
STUDY.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,  
JAN 76 44P SUMMERS, MICHAEL W. ;  
REPT. NO. RADC-TR-75-318  
PROJ: AF-5550  
TASK: 555001

UNCLASSIFIED REPORT

DESCRIPTORS: \*PARALLEL PROCESSORS, \*ASSOCIATIVE  
PROCESSING, \*AIRBORNE WARNING AND CONTROL SYSTEM,  
COMPUTER PROGRAMMING, REAL TIME, MEMORY DEVICES,  
KALMAN FILTERING

(U)

THIS REPORT PRESENTS THE INITIAL RESULTS OF AN IN-HOUSE, PARALLEL PROCESSOR APPLICATION STUDY. THE STUDY WAS UNDERTAKEN TO EVALUATE THE ABILITY OF A PARALLEL COMPUTER ARCHITECTURE TO PERFORM THE DATA PROCESSING FUNCTIONS OF THE AIRBORNE WARNING AND CONTROL SYSTEM (AWACS). THE RESULTS OF THE ACTIVE TRACKING PORTION OF THE STUDY ARE PRESENTED AFTER A BRIEF DESCRIPTION OF THE TEST PROBLEM AND THE EVALUATION PROCEDURES.

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A021 255 14/5 5/2  
NATIONAL BUREAU OF STANDARDS WASHINGTON D C COMPUTER  
SYSTEMS ENGINEERING DIV

EVALUATION OF TRANSPARENT ELECTRO-  
PHOTOGRAPHIC FILM AND CAMERA SYSTEM.

(U)

DESCRIPTIVE NOTE: INTERIM REPT.,  
JAN 76 1IP BAGG, THOMAS C. ;  
REPT. NO. NBSIR-76-991

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SPONSORED IN PART BY NAVAL SUPPLY  
SYSTEMS COMMAND, WASHINGTON, D.C.

DESCRIPTORS: \*PHOTOGRAPHIC FILM, \*DATA STORAGE  
SYSTEMS, \*MICROFORM, ASSESSMENT,  
ELECTROPHOTOGRAPHY

(U)

IDENTIFIERS: AB DICK/SCOTT SYSTEM 200,  
ELECTROPHOTOGRAPHIC MATERIALS, ADD ON  
MICROFILM

(U)

ON BEHALF OF THE NAVAL SUPPLY SYSTEMS  
COMMAND, THE NATIONAL BUREAU OF STANDARDS WAS  
REQUESTED TO ASSIST IN THE EVALUATION OF NEW  
MICROFILM TECHNIQUES AND MATERIALS WHICH PERMIT THE  
ADDING-ON OF IMAGES AT VARIOUS TIMES. THIS IS AN  
INTERIM REPORT ON THE INITIAL EVALUATION OF THE AB  
DICK/SCOTT SYSTEM 200 WHICH USES TRANSPARENT  
ELECTROPHOTOGRAPHIC MATERIALS.

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A021 274 9/2  
SCIENCE APPLICATIONS INC ARLINGTON VA

REPORT OF THE ARPA STUDY GROUP ON ADVANCED  
MEMORY CONCEPTS.

(U)

DESCRIPTIVE NOTE: FINAL REPT. 1 OCT 74-30 APR 75,  
FEB 76 59P BERLEKAMP,E. R. IGARWIN,R.  
L. KNUTH,D. E. LEDERBERG,J. LEIBLER,R.  
A.  
REPT. NO. SAI-75-631-WA  
CONTRACT: F30602-75-C-0098, ARPA ORDER-2886  
MONITOR: RADC TR-76-28

UNCLASSIFIED REPORT

DESCRIPTORS: \*MEMORY DEVICES, SYSTEMS ENGINEERING,  
STATE OF THE ART  
IDENTIFIERS: \*COMPUTER STORAGE DEVICES

(U)

(U)

FOLLOWING A BRIEF OVERVIEW OF SHORT-TERM INDUSTRIAL  
TRENDS, THIS REPORT HIGHLIGHTS FOUR IMPORTANT  
RESEARCH AREAS WHICH SHOULD BE PROMINENTLY INCLUDED  
IN THE ARPA PROGRAM IN ADVANCED MEMORY  
CONCEPTS. LISTED IN THE ORDER OF THE IMMEDIACY OF  
THEIR APPLICABILITY, THESE ARE: (1) INNOVATIVE  
TECHNOLOGY, (2) ARCHITECTURE, SOFTWARE AND  
THEORY, (3) MATERIALS SCIENCES, INCLUDING SOLID  
STATE PROPERTIES OF ORGANICS, AND (4)  
NEUROSCIENCES. THE FINAL SECTION OF THIS REPORT  
CONTAINS RECOMMENDATIONS ON HOW THE ADVANCED  
MEMORY CONCEPTS PROGRAM SHOULD BE MANAGED.

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A021 421

9/2

SPERRY RAND CORP GREAT NECK N Y SPERRY GYROSCOPE

DESIGN AND FABRICATION OF RADIATION-HARDENED  
MNOS MEMORY ARRAY.

(U)

DESCRIPTIVE NOTE: FINAL REPT. 25 JAN 73-30 JUN 74,  
JUL 75 205P MARRAFFINO,PAUL ;ROGERS,JOHN  
M. ;ROGICH,STEVEN G. ;WEGENER,H. A. R. I  
REPT. NO. SGD-4282-0791  
CONTRACT: F29601-73-C-0059  
PROJ: DNA-NWED-QAXT  
TASK: D043  
MONITOR: AFWL TR-74-209

UNCLASSIFIED REPORT

DESCRIPTORS: \*MEMORY DEVICES, \*RANDOM ACCESS  
COMPUTER STORAGE, SEMICONDUCTOR DEVICES, RADIATION  
HARDENING, METAL NITRIDE OXIDE SEMICONDUCTORS,  
TRANSISTORS, INTEGRATED CIRCUITS, AIRBORNE,  
ENVIRONMENTAL TESTS

(U)

IDENTIFIERS: SEMICONDUCTOR COMPUTER STORAGE,  
COMPUTER STORAGE DEVICES, \*SEMICONDUCTOR STORAGE  
DEVICES

(U)

THE REPORT DESCRIBES WORK PERFORMED TO DEVELOP A  
RADIATION-HARDENED MNOS MEMORY ARRAY FOR USE IN A  
RAM MEMORY OF AN AIRBORNE COMPUTER. A STUDY OF  
MNOS DEVICE OPERATION LED TO THE FABRICATION AND  
TEST OF SEVERAL MEMORY AND FIXED THRESHOLD  
TRANSISTORS AND 256-BIT MEMORY CIRCUITS.  
ENVIRONMENTAL TEST DATA TAKEN AT THREE RADIATION  
SIMULATION SOURCES AND UNDER ENDURANCE STRESS IS  
PRESENTED ALONG WITH STUDIES ON CIRCUIT DESIGN,  
PACKAGING, AND SYSTEM DESIGN.

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A021 673 9/2

ILLINOIS UNIV AT URBANA-CHAMPAIGN COORDINATED SCIENCE  
LAB

HIGH DENSITY OPTICAL MEMORY.

(U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT.,  
NOV 75 105P KNOEBEL,H. W. IKRONE,H.  
V. IKIRKWOOD,B. D. IRURT,J. V. IHARRIS,D.  
G. ;

CONTRACT: N00014-67-A-0305-0015

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO REPORT DATED APR 75, AD-  
A009 887.

DESCRIPTORS: \*MEMORY DEVICES, COLOR CENTERS,  
SODIUM CHLORIDE, POTASSIUM CHLORIDE,  
ELECTROOPTICS, COMPUTER APPLICATIONS, RANDOM  
ACCESS COMPUTER STORAGE

(U)

IDENTIFIERS: \*OPTICAL CRYSTAL MEMORIES, ALKALI  
HALIDES

(U)

THE PURPOSE OF THIS RESEARCH IS TO STUDY THE  
PROBLEMS ASSOCIATED WITH AN EXPERIMENTAL READ-WRITE,  
RANDOM ACCESS OPTICAL MEMORY AND TO DEMONSTRATE ITS  
FEASIBILITY. THE MEMORY ELEMENT EMPLOYED IS THE  
(M SUB A) COLOR CENTER IN KCL:NACL. THE  
FACT THAT IT IS EXTREMELY WELL STUDIED AND THAT THE  
WRITING WAVELENGTH IS IN THE VISIBLE RANGE DETERMINED  
ITS CHOICE FOR THIS STUDY. TOPICS DISCUSSED IN THE  
REPORT INCLUDE THE FOLLOWING: COLOR CENTER  
PHYSICS; DIFFRACTION LIMITED FOCUSING AND HEATING  
EFFECTS; CRYSTAL PREPARATION; THERMO ELECTRIC  
COOLING; POLARIZATION CONTROL; DEFLECTION  
SYSTEMS; MEMORY CONTROLLER; COMPUTER INTERFACE;  
EXPERIMENTAL RESULTS.

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A021 828 9/2  
NAVAL POSTGRADUATE SCHOOL MONTEREY CALIF

DESIGN CONSIDERATIONS FOR THE NPS SIGNAL  
PROCESSING AND DISPLAY LABORATORY  
MULTIPROCESSING OPERATING SYSTEM.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,  
NOV 75 25P ALLEN,B. E. BARKSDALE,G.  
L. , JR;  
REPT. NO. NPS-72AN75111

UNCLASSIFIED REPORT

DESCRIPTORS: \*MULTIPROCESSORS, REAL TIME, MEMORY  
DEVICES, INTERACTIVE GRAPHICS, TIME SHARING,  
COMPUTER ARCHITECTURE

(U)

IDENTIFIERS: \*MUNIX SYSTEM, PDP-11/50 COMPUTERS,  
\*OPERATING SYSTEMS(COMPUTERS)

(U)

THE DESIGN AND IMPLEMENTATION OF MUNIX, A  
TIGHTLY-COUPLED SYMMETRIC MULTIPROCESSING PDP 11  
BASED OPERATING SYSTEM PROVIDING REAL-TIME,  
INTERACTIVE, AND BACKGROUND PROCESSING FACILITIES IN  
A HIERARCHICAL MEMORY ENVIRONMENT IS DESCRIBED.  
MUNIX IS A VARIANT OF UNIX, AN OPERATING SYSTEM  
FOR THE PDP 11 DEVELOPED AT BELL LABORATORIES.  
THE THREE MAJOR DESIGN GOALS OF THE SYSTEM WERE:  
(1) SUPPORT FOR PROCESSES CAPABLE OF REAL-TIME  
INTERACTION WITH SEVERAL DYNAMIC GRAPHICS DISPLAY  
UNITS, AN ARRAY PROCESSOR, AND A MULTI-CHANNEL A/  
D CONVERTER; (2) INTERACTIVE AND BACKGROUND  
PROCESSING FACILITIES TO SUPPORT PROGRAM DEVELOPMENT;  
AND, (3) MANAGEMENT OF THE HIERARCHICAL STORAGE  
CREATED BY THE MIX OF SHARED AND PRIVATE MEMORIES OF  
VARIOUS SPEEDS.

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A021 863 9/2  
BOLT BERANEK AND NEWMAN INC CAMBRIDGE MASS

PLURIBUS DOCUMENT 1: OVERVIEW.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,  
MAY 75 1SP ORNSTEIN,S. M. ;  
REPT. NO. BBN-2999  
CONTRACT: F08606-73-C-0027, F08606-75-C-0032  
PROJ: ARPA ORDER-2351

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO DOCUMENT 2, AD-A021  
864.

DESCRIPTORS: \*MULTIPROCESSORS, \*COMPUTER  
ARCHITECTURE, HIGH RATE, BUS CONDUCTORS, COST  
EFFECTIVENESS, RELIABILITY, INPUT OUTPUT PROCESSING,  
MEMORY DEVICES, SWITCHING, PARALLEL PROCESSORS,  
FAULT TOLERANT COMPUTING, CENTRAL PROCESSING UNITS,  
NETWORKS

(U)

IDENTIFIERS: COMPUTER NETWORKS, DESIGN, PLURIBUS  
COMPUTERS, FAN IN, FAN OUT

(U)

THE PLURIBUS IS A RELIABLE, EXPANDABLE, HIGH  
BANDWIDTH LINE OF MULTI-RESOURCE COMPUTERS ORIGINALLY  
DEVELOPED FOR USE AS A SWITCHING NODE IN THE ARPA  
COMPUTER NETWORK. IT CAN BE CONFIGURED WITH  
ARBITRARY AMOUNTS OF MEMORY AND I/O TAILORED TO  
SUIT THE APPLICATION; IT IS DESIGNED TO SURVIVE  
FAILURES AND CONTINUE OPERATION WITHOUT HUMAN  
INTERVENTION EVEN WHILE REPAIRS ARE IN PROGRESS.  
THIS REPORT, ONE OF A SET OF NINE VOLUMES  
DOCUMENTING THE PLURIBUS LINE, PROVIDES A BRIEF  
OVERVIEW OF THE SYSTEM AS A WHOLE. (AUTHOR)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A021 864 9/2  
BOLT BERANEK AND NEWMAN INC CAMBRIDGE MASS

PLURIBUS DOCUMENT 2: SYSTEM HANDBOOK.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,  
JAN 75 190P MORGAN,C. R. ;  
REPT. NO. BBN-2930  
CONTRACT: F08606-73-C-0027, F08606-75-C-0032  
PROJ: ARPA ORDER-2351

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO DOCUMENT 1, AD-A021  
863.

DESCRIPTORS: \*MULTIPROCESSORS, \*COMPUTER  
ARCHITECTURE, HIGH RATE, BUS CONDUCTORS,  
SWITCHING, HANDBOOKS, INPUT OUTPUT DEVICES,  
MEMORY DEVICES, CENTRAL PROCESSING UNITS, FAULT  
TOLERANT COMPUTING, PARALLEL PROCESSORS, COMPUTER  
PROGRAM DOCUMENTATION, NETWORKS

(U)

IDENTIFIERS: COMPUTER NETWORKS, PLURIBUS  
COMPUTERS, COMPUTER SOFTWARE

(U)

THIS REPORT, ONE OF A SET OF NINE VOLUMES  
DOCUMENTING THE PLURIBUS LINE, PROVIDES A GUIDE TO  
THE OTHER VOLUMES, A GLOSSARY, AN INDEX, AND AN  
EXTENSIVE DESCRIPTION OF THE SYSTEM.

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A021 919 9/2  
IBM FEDERAL SYSTEMS DIV OWEGO N Y

PROGRAM DOCUMENTATION FOR THE VOLTSCAN  
PROGRAM.

(U)

JAN 76 28P MILLER, J. J., JR;  
CONTRACT: F33615-75-C-5152  
PROJ: AF-7184  
TASK: 718414  
MONITOR: AMRL;AMRL TR-76-13, HESS-76-2

UNCLASSIFIED REPORT

DESCRIPTORS: \*COMPUTER PROGRAMS, \*COMPUTER GRAPHICS,  
\*DIGITAL COMPUTERS, ASSEMBLY LANGUAGES, PUNCHED  
CARDS, FLOW CHARTING, COMPUTER LOGIC, DIGITIZERS,  
FORTRAN

(U)

IDENTIFIERS: \*VOLTSCAN COMPUTER PROGRAM, IBM 370  
COMPUTERS, IBM 2250 DISPLAYS, COMPUTER  
SOFTWARE

(U)

THE VOLTSCAN PROGRAM PROVIDES THE CAPABILITY TO  
GRAPHICALLY DISPLAY FOUR CHANNELS OF DIGITIZED ANALOG  
SAMPLES. THE PROGRAM WAS WRITTEN FOR AN IBM  
SYSTEM/370, MODEL 155 COMPUTER OPERATING UNDER  
THE STANDARD MFT VERSION OF THE OPERATING  
SYSTEM. ASSEMBLER LANGUAGE AND FORTRAN WERE  
USED IN CODING THE PROGRAM. THE IBM 2250  
GRAPHICS PROGRAMMING SERVICES WERE UTILIZED FOR  
THE GRAPHIC SOFTWARE SUPPORT. (AUTHOR)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A022 088 9/2 9/5  
MARYLAND UNIV COLLEGE PARK DEPT OF COMPUTER SCIENCE

DYNAMIC FILE ACCESS IN A DISTRIBUTED  
COMPUTER NETWORK.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,  
FEB 76 32P MILLS,DAVID L. ;  
REPT. NO. TR-415  
CONTRACT: N00014-67-A-0239-0032, NSF-GK-41602

UNCLASSIFIED REPORT

DESCRIPTORS: \*COMPUTERS, \*NETWORKS,  
\*MULTIPROCESSORS, DISTRIBUTION, COMPUTER PROGRAMS,  
INTERFACES, INTEREQUIPMENT COMMUNICATION,  
MINICOMPUTERS, DICTIONARIES, CATALOGS, ADAPTIVE  
SYSTEMS

(U)

IDENTIFIERS: PDP 11 COMPUTERS, PDP 45 COMPUTERS,  
PDP 40 COMPUTERS, UNIVAC 1106 COMPUTERS,  
TRANSIENT FAULT RECOVERY

(U)

THIS PAPER DESCRIBES THE DESIGN OF A SYSTEM FOR  
ACCESSING FILES AND OTHER NAMED OBJECTS IN A  
DISTRIBUTED COMPUTER NETWORK. THE SYSTEM INCLUDES A  
SET OF MUTUALLY COOPFRATING PORTABLE PROCESSES WHICH,  
TOGETHER WITH OTHER PROCESSES WHICH SUPPORT USER  
PROGRAMS, CAN MIGRATE DYNAMICALLY BETWEEN THE  
COMPUTERS OF THE NETWORK. IMPORTANT FEATURES IN THE  
DESIGN INCLUDE AN EFFICIENT ACCESS METHOD WHICH  
MINIMIZES DICTIONARY SEARCHES TO FIND A FILE WHEN ITS  
LOCATION IS UNKNOWN IN ADVANCE AND A ROBUST RECOVERY  
PROCEDURE THAT INSURES THE INTEGRITY OF THE SYSTEM  
SHOULD ONE OR MORE OF THE PROCESSES OR COMPUTERS  
FAIL. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A022 175 9/2 9/5  
POLYTECHNIC COLL OF CENTRAL LONDON (ENGLAND)\*

VARIABLE TOPOLOGY MULTICOMPUTER SYSTEM\* (U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT.,  
NOV 75 63P PAKER, YAKUP ;  
CONTRACT: DA-ERO-124-74-G-0079  
PROJ: DA-1-T-161102-B-31-E  
TASK: 1-T-161102-B-31-E-00

UNCLASSIFIED REPORT

DESCRIPTORS: \*COMPUTER ARCHITECTURE,  
\*MULTIPROCESSORS, \*COMPUTER COMMUNICATIONS,  
\*DIGITAL COMPUTERS, NODES, REAL TIME, NETWORKS,  
MODELS, CHIPS(ELECTRONICS), INTEGRATED  
CIRCUITS, SIMULATION, SWITCHING CIRCUITS, HIGH  
RATE, MEMORY DEVICES (U)

IDENTIFIERS: \*VARIABLE TOPOLOGY MULTICOMPUTERS,  
LARGE SCALE INTERGRATION (U)

THE MAIN FEATURES OF A PROPOSED VARIABLE TOPOLOGY  
MULTI-COMPUTER (VTM) SYSTEM HAVE BEEN ESTABLISHED.  
THE COMMUNICATION LINKS BETWEEN THE NODE COMPUTERS  
OF THE NETWORK CAN BE DESIGNED TO ALLOW THE  
COMBINATION OF BOTH PACKET AND CIRCUIT SWITCHING  
TECHNIQUES. DESIGN ASPECTS OF THE INTER-COMPUTER  
MESSAGE HANDLER ARE DISCUSSED IN DETAIL. VARIOUS  
ANALYTICAL MODELS OF VTM STRUCTURES HAVE BEEN  
INVESTIGATED AND THE RESULTS OF A DIGITAL SIMULATION  
OF THE PERFORMANCE OF A SINGLE NODE COMPUTER ARE  
PRESENTED. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A022 618 17/9 9/2  
SINGER CO SUNNYVALE CALIF SIMULATION PRODUCTS DIV

SIMPLIFIED RADAR AZIMUTH BEAMSPREAD  
STUDY.

(U)

DESCRIPTIVE NOTE: FINAL REPT. 10 MAY-19 DEC 75,  
DEC 75 58P WINDSOR, DAVID;  
REPT. NO. UC-7256  
CONTRACT: F33657-73-C-0692  
PROJ: AF-1183

UNCLASSIFIED REPORT

DESCRIPTORS: \*RADAR MAPPING, \*BEAM FORMING, \*DATA  
STORAGE SYSTEMS, COMPUTERIZED SIMULATION,  
ALGORITHMS, AZIMUTH, AIRBORNE, JET FIGHTERS,  
ELECTRONIC AIRCRAFT, DATA COMPRESSION, FOURIER  
TRANSFORMATION

(U)

IDENTIFIERS: F-4F AIRCRAFT, F-4 AIRCRAFT, E-  
2C AIRCRAFT, E-2 AIRCRAFT, AN/APQ-110,  
LITERAL STORAGE

(U)

THIS REPORT DESCRIBES A STUDY FOR A SIMPLIFIED  
BEAMSPREAD SIMULATION FOR USE IN DIGITAL RADAR  
LANDMASS SIMULATORS. FOUR NEW BEAMSPREAD ALGORITHMS  
ARE PRESENTED WHICH REQUIRE LESS MEMORY AND COMPUTING  
HARDWARE THAN THOSE FOUND IN CURRENTLY AVAILABLE  
SYSTEMS. COMPUTER-GENERATED PHOTOGRAPHS ARE  
INCLUDED TO GIVE A DIRECT VISUAL COMPARISON OF THE  
EFFECTS OF THE NEW ALGORITHMS WITH THE EFFECTS OF THE  
BEAMSPREAD ALGORITHM IN THE F-4F DRLMS.

(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A022 667 9/2 9/5  
HUGHES AIRCRAFT CO CULVER CITY CALIF DATA SYSTEMS DIV

RELIABILITY EVALUATION OF PROGRAMMABLE READ-  
ONLY MEMORIES (PROMS). (U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT. 4 MAR 74-3  
MAR 75.  
FEB 76 288P DONNELLY, T. M. ; POWELL, W.  
W. DEWITT, C. M. ; JERAND, D. R. ;  
PENBERG, M. ;  
CONTRACT: F30602-74-C-0156  
PROJ: AF-5519  
TASK: 551904  
MONITOR: RADC TR-75-278

UNCLASSIFIED REPORT

DESCRIPTORS: \*READ ONLY MEMORIES, \*MEMORY DEVICES,  
\*MICROCIRCUITS, RELIABILITY(ELECTRONICS),  
AVALANCHE DIODES, CIRCUIT ANALYSIS, PROGRAMMED  
INSTRUCTION, COMPUTER PROGRAMMING,  
MATRICES(CIRCUITS), HIGH RELIABILITY (U)

IDENTIFIERS: PROM(PROGRAMMABLE READ ONLY  
MEMORIES), PROGRAMMABLE READ ONLY MEMORIES,  
TITANIUM TUNGSTEN FUZES (U)

THE PRIMARY OBJECTIVES OF THIS STUDY WERE TO:  
(1) ASSESS UNIQUE FACTORS AFFECTING THE  
RELIABILITY OF 1024-BIT OPEN COLLECTOR PROGRAMMABLE  
READ-ONLY MEMORIES (PROMS) FROM THREE  
TECHNOLOGIES, I.E., NICHROME FUSIBLE LINKS, TITANIUM-  
TUNGSTEN FUSIBLE LINKS AND AVALANCHE INDUCED  
MIGRATION (AIM) OR 'BLOWN DIODE' TECHNOLOGY;  
(2) RECOMMEND PROGRAMMING, TESTING AND SCREENING  
GUIDELINES FOR THE SUBJECT PROMS; AND (3)  
DEVELOP A FAILURE PREDICTION TECHNIQUE FOR THE  
SUBJECT PROMS. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A022 859 9/2  
COMPUTER CORP OF AMERICA CAMBRIDGE MASS

DATA COMPUTER PROJECT.

(U)

DESCRIPTIVE NOTE: SEMI-ANNUAL TECHNICAL REPT. 1 JUL-31  
DEC 75.

JAN 76 54P

CONTRACT: MDA903-74-C-0225, ARPA ORDER-2687

UNCLASSIFIED REPORT

DESCRIPTORS: \*DATA STORAGE SYSTEMS, \*COMMUNICATIONS  
NETWORKS, TIME SHARING, COMPILERS, DATA

(U)

MANAGEMENT, MEMORY DEVICES, INTERFACES  
IDENTIFIERS: \*DATA COMPUTER PROJECT, \*COMPUTER

NETWORKS, TENEX SYSTEM, COMPUTER STORAGE  
MANAGEMENT, ARPA COMPUTER NETWORK

(U)

THIS REPORT DESCRIBES OUR WORK ON THE  
DATA COMPUTER SYSTEM FROM JULY 1, 1975 TO  
DECEMBER 31, 1975. WORK DURING THE REPORTING  
PERIOD FALLS INTO TWO MAIN CATEGORIES: INSTALLATION  
AND OPERATION OF DATA COMPUTER VERSION I, THE  
FIRST FULL SERVICE VERSION OF THE DATA COMPUTER; AND  
PREPARATION FOR THE NEXT VERSION, WHICH IS TO  
INCORPORATE AN AMPLEX TERABIT MEMORY SYSTEM.  
PARALLEL OPERATION OF VERSION 0/II CONTINUED INTO  
THIS PERIOD, AND VARIOUS OTHER ACTIVITIES RECEIVED  
ATTENTION AS WILL BE REPORTED.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A022 862 9/2  
MACRODATA CORP WOODLAND HILLS CALIF

RELIABILITY EVALUATION OF SEMICONDUCTOR  
MEMORIES.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,  
FEB 76 278P CHIANG, ALBERT C. L. ;  
CONTRACT: F30602-74-C-0093  
PROJ: AF-5519  
TASK: 551904  
MONITOR: RADC TR-76-16

UNCLASSIFIED REPORT

DESCRIPTORS: \*MEMORY DEVICES, SEMICONDUCTOR DEVICES,  
READ ONLY MEMORIES, RANDOM ACCESS COMPUTER STORAGE,  
RELIABILITY(ELECTRONICS), MILITARY REQUIREMENTS,  
MICROCIRCUITS

(U)

IDENTIFIERS: \*SEMICONDUCTOR STORAGE DEVICES,  
\*SEMICONDUCTOR COMPUTER STORAGE, COMPUTER STORAGE  
DEVICES

(U)

THE REPORT PRESENTS A STUDY WHICH WAS CONDUCTED TO  
EVALUATE THE RELIABILITY OF HIGH USAGE SEMICONDUCTOR  
MEMORIES. THE STUDY DETERMINED PARAMETRIC AND  
FUNCTIONAL TESTS WHICH ARE REQUIRED FOR MILITARY  
SPECIFICATIONS. SPECIAL ATTENTION WAS GIVEN TO THE  
APPLICATION OF FUNCTIONAL TESTS TO DETECT AND SCREEN  
OUT DEVICES WITH PATTERN SENSITIVITY. FIVE TYPES  
WHICH COVER A LARGE PART OF THE WIDE SPECTRUM OF  
MEMORY DEVICES IN USE TODAY WERE CHOSEN FOR  
CHARACTERIZATION AND TESTING TO DETERMINE OPTIMUM  
PARAMETRIC AND FUNCTIONAL TESTS AND LIMITS REQUIRED  
IN MILITARY SPECIFICATIONS FOR MEMORIES.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A023 116 9/2  
TEXAS UNIV AT AUSTIN ELECTRONICS RESEARCH CENTER

ANALYSIS OF VIRTUAL MEMORY  
IMPLEMENTATIONS.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,  
JUL 75 123P WHITE,LIONEL S. , JR.;  
WELCH,T. A.;  
REPT. NO. TR-174  
CONTRACT: F44620-71-C-0091  
PROJ: AF-6813, AF-4751  
TASK: 681306  
MONITOR: AFOSR TR-76-0190

UNCLASSIFIED REPORT

DESCRIPTORS: \*MEMORY DEVICES, MULTIPLEXING,  
INTEGRATED CIRCUITS, RANDOM ACCESS COMPUTER STORAGE (U)  
IDENTIFIERS: \*VIRTUAL MEMORY, SEMICONDUCTOR  
COMPUTER STORAGE, LOGIC DESIGN (U)

SEMICONDUCTOR MEMORY COMPONENTS PROVIDE OPPORTUNITIES FOR NEW COMPUTER MEMORY STRUCTURES DUE TO TWO ADVANTAGES THEY OFFER OVER CORE MEMORIES: (1) LOGIC CAN BE INTEGRATED INTO THE MEMORY STRUCTURES, AND (2) SMALL BLOCKS OF MEMORY CAN BE ACCESSED INDEPENDENTLY FOR IMPROVED ACCESS FLEXIBILITY. THIS RESEARCH PROPOSES USING THESE PROPERTIES TO ACHIEVE A MORE EFFICIENT IMPLEMENTATION OF A VIRTUAL MEMORY SYSTEM. THE PROPOSED SYSTEM USES NOVEL SEMICONDUCTOR MEMORY CHIPS TO INTEGRATE THE ADDRESS-MAPPING FUNCTION AND THE DATA-MULTIPLEXING FUNCTION INTO THE MEMORY CIRCUITS, WITH CONSEQUENT SAVING OF EXTERNAL OVERHEAD CIRCUITRY. THIS PROPOSED SYSTEM IS COMPARED IN DETAIL WITH A CONVENTIONAL IMPLEMENTATION OF A VIRTUAL MEMORY SYSTEM, SHOWING COST AND PERFORMANCE FIGURES FOR A VARIETY OF SYSTEM CONFIGURATIONS. THE PROPOSED SYSTEM IS SHOWN TO GIVE SUPERIOR RESULTS IN SMALLER MEMORIES OR IN HIGH-PERFORMANCE MEMORIES. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A023 227 9/5  
RELIABILITY ANALYSIS CENTER GRIFFISS AFB N Y

MICROCIRCUIT DEVICE RELIABILITY: MEMORY/  
LSI DATA.

(U)

76 21SP RICKERS, HENRY C. ;  
REPT. NO. RAC-MDR-3  
CONTRACT: F30602-73-C-0065

UNCLASSIFIED REPORT

DESCRIPTORS: \*INTEGRATED CIRCUITS, \*MICROCIRCUITS,  
\*RELIABILITY(ELECTRONICS), MEMORY DEVICES,  
FABRICATION, SHIFT REGISTERS, READ ONLY MEMORIES,  
RANDOM ACCESS COMPUTER STORAGE

(U)

IDENTIFIERS: LARGE SCALE INTEGRATED CIRCUITS,  
MICROPROCESSORS, \*SEMICONDUCTOR COMPUTER  
STORAGE

(U)

THE COMPENDIUM OF MICROCIRCUIT RELIABILITY DATA  
IS SEPARATED INTO TWO PARTS: GENERAL LSI  
TECHNOLOGY SUMMARIES AND DETAILED DATA  
SECTIONS. THE FIRST PART PRESENTS DESCRIPTIONS OF  
THE FABRICATION PROCESSES OF THE LSI TECHNOLOGIES,  
CHARACTERIZATION OF PARAMETERS WHICH INFLUENCE DEVICE  
RELIABILITY, AND GENERAL DATA SUMMARIES. THE  
SECOND PART IS ARRANGED WITH EACH SECTION DEVOTED TO  
A PARTICULAR MEMORY/LSI DEVICE FUNCTION. EACH  
SECTION IN PART TWO CONTAINS A DETAILED BREAKDOWN OF  
PART LEVEL LIFE AND ENVIRONMENTAL/SCREENING TEST  
RESULTS ARRANGED BY PART MANUFACTURER AND PART  
NUMBER. IN ADDITION, EACH SECTION CONTAINS DATA  
SUMMARIES WHICH PROVIDE QUICK INSIGHT INTO LIFE TEST  
RESULTS, RELIABILITY DEMONSTRATION TEST RESULTS, AND  
FAILURE CLASSIFICATIONS.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A023 387

9/2

CALIFORNIA UNIV BERKELEY ELECTRONICS RESEARCH LAB

A REVIEW AND PROJECTION OF SEMICONDUCTOR  
COMPONENTS FOR DIGITAL STORAGE.

(U)

NOV 74 14P HODGES, DAVID A. I

CONTRACT: F44620-71-C-0087

PROJ: AF-4751

TASK: 475105

MONITOR: AFOSR TR-76-0428

UNCLASSIFIED REPORT

AVAILABILITY: PUB. IN PROCEEDINGS OF THE IEEE,  
V63 N8 P1136-1147 AUG 75.

DESCRIPTORS: \*MEMORY DEVICES, \*INTEGRATED CIRCUITS,  
\*SEMICONDUCTOR DEVICES, METAL OXIDE SEMICONDUCTORS,  
METAL NITRIDE OXIDE SEMICONDUCTORS, CHARGE COUPLED  
DEVICES, BIPOLEAR TRANSISTORS, COSTS,  
RELIABILITY(ELECTRONICS), REPRINTS

(U)

IDENTIFIERS: \*SEMICONDUCTOR COMPUTER STORAGE

(U)

EVOLUTION OF PRESENT INTEGRATED-CIRCUIT TECHNOLOGY  
OVER THE REMAINDER OF THE DECADE SHOULD RESULT IN  
SEMICONDUCTOR MEMORIES WHICH ARE COMPETITIVE WITH  
MOVING-SURFACE MEMORIES AND OTHER ALTERNATIVES IN  
MANY DIGITAL STORAGE APPLICATIONS REQUIRING 10 TO THE  
7TH POWER-10 TO THE 10TH POWER BITS CAPACITY. THIS  
PAPER CONSIDERS MOS, MNOS, CCD, AND RIPOLAR  
COMPONENT APPROACHES TO THIS OBJECTIVE. COST,  
RELIABILITY AND POWER CONSUMPTION, AS AFFECTED BY  
TECHNOLOGICAL CHOICES, RECEIVE ATTENTION.  
ALTERNATIVE DEVICE TECHNOLOGIES AND CIRCUIT DESIGNS  
ARE EXAMINED. THE ONE-TRANSISTOR MOS RAM IS  
SEEN TO HAVE POTENTIAL FOR CONSIDERABLE GROWTH.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-AD23 443 9/2

ILLINOIS UNIV AT URBANA-CHAMPAIGN COORDINATED SCIENCE  
LAB

M AND M SYSTEM DESIGN AND OPERATION. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.  
DEC 75 73P JACOBUS,CHARLES JERIMIAH ;  
REPT. NO. R-709, UILU-ENG-75-2245  
CONTRACT: DAAB07-72-C-0259, F33615-73-C-1238

UNCLASSIFIED REPORT

DESCRIPTORS: \*MINICOMPUTERS, \*MULTIPROCESSORS,  
\*COMPUTER PROGRAMMING, MEMORY DEVICES, DATA  
MANAGEMENT, CONSOLES, COMPUTER ARCHITECTURE, REAL  
TIME, INPUT OUTPUT PROCESSING,  
DEBUGGING(COMPUTERS) (U)

IDENTIFIERS: MULTIPROGRAMMING, PDP 11 COMPUTERS,  
MEMORY MANAGEMENT, \*PDP-11/40 COMPUTERS,  
\*OPERATING SYSTEMS(COMPUTERS) (U)

THIS DOCUMENT DESCRIBES THE OPERATION AND DESIGN OF  
A MULTIPROGRAMMING OPERATING SYSTEM WRITTEN FOR THE  
PDP-11/40 WITH MEMORY MANAGEMENT OPTION. NO  
PARTICULAR SYSTEM DEVICE IS REQUIRED IN THAT ALL  
SYSTEM MODULES RESIDE IN CORE. CONTROL COMMANDS ARE  
ISSUED THROUGH ONE SYSTEM CONSOLE AND MULTIPROCESSING  
IS INITIATED FROM A ROOT TASK STARTED THROUGH  
COMMANDS TYPED TO THIS CONSOLE. THIS SYSTEM IS  
PRIMARILY SINGLE USER WITH MULTIPROCESSING OPTIONS.  
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A023 598 8/11 9/2  
COMPUTER CORP OF AMERICA CAMBRIDGE MASS

DATACOMPUTER SUPPORT OF SEISMIC DATA  
ACTIVITY.

(U)

DESCRIPTIVE NOTE: QUARTERLY TECHNICAL REPT. 1 NOV 75-31  
JAN 76.

JAN 76 14P

CONTRACT: MDA903-74-C-0227, ARPA ORDER-2613

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO REPORT DATED 31 OCT 75,  
AD-A019 961.

DESCRIPTORS: \*SEISMIC DATA, \*DATA PROCESSING,  
\*DATA STORAGE SYSTEMS, INFORMATION RETRIEVAL,  
COMPUTER PROGRAMMING, COMMUNICATIONS NETWORKS,  
INTERFACES

(U)

IDENTIFIERS: ARPA COMPUTER NETWORK, COMPUTER  
NETWORKS, SEISMIC INPUT PROCESSORS, \*DATACOMPUTER

(U)

PROJECT ACTIVITY CAN BE DIVIDED INTO FOUR  
CATAGORIES: (1) SIP DEVELOPMENT AND NETWORK  
BANDWIDTH CONSIDERATIONS; (2) TBM ACQUISITION  
AND INTEGRATION INTO THE DATACOMPUTER; (3)  
COORDINATION WITH THE SEISMIC COMMUNITY; AND (4)  
SEISMIC-DATA RELATED DATACOMPUTER DEVELOPMENT.  
ONE SECTION IN THIS REPORT IS DEVOTED TO EACH OF  
THESE CATAGORIES.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A023 931 9/2  
STANFORD UNIV CALIF DIGITAL SYSTEMS LAB

AN EFFICIENT IMPLEMENTATION OF MONITORS AND  
CONDITION VARIABLES.

(U)

DESCRIPTIVE NOTE: TECHNICAL NOTE,  
AUG 75 24P SAXENA,ASHOK R. I  
REPT. NO. TN-72  
CONTRACT: N00014-67-A-0112-0044  
PROJ: AF-7151

UNCLASSIFIED REPORT

DESCRIPTORS: \*MONITORS, PARALLEL PROCESSING,  
MEMORY DEVICES, BOOLEAN ALGEBRA, PROCESSING  
EQUIPMENT, PARALLEL PROCESSING, CODING, COMPUTER  
COMMUNICATIONS

(U)

IDENTIFIERS: SEMAPHORES, STRUCTURED  
PROGRAMMING

(U)

THIS PAPER PRESENTS A PROPOSAL FOR AN  
IMPLEMENTATION OF MONITORS AND CONDITION VARIABLES.  
THE PROPOSED IMPLEMENTATION ALLOWS THE USE OF A  
LARGE NUMBER OF MONITORS AND CONDITION VARIABLES WITH  
MAIN MEMORY REQUIREMENTS PROPORTIONAL TO THE NUMBER  
OF CONCURRENT PROCESSES AND THE MAXIMUM DEPTH OF  
NESTED MONITOR CALLS. THE PROPOSED IMPLEMENTATION  
IS USEFUL FOR OPERATING SYSTEMS WITH A FIXED (AND  
SMALL) NUMBER OF CONCURRENT PROCESSES WITH VIRTUAL  
MEMORY. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A024 019 9/2 17/2  
NAVAL RESEARCH LAB WASHINGTON D C

RANDOM BIT GENERATOR.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,  
MAR 76 47P CHAYT, KENNETH A. ;  
REPT. NO. NRL-MR-3249  
PROJ: NRL-R01-62, XCCS!

UNCLASSIFIED REPORT

DESCRIPTORS: \*RANDOM NUMBER GENERATORS, \*ERROR  
CORRECTION CODES, \*VOICE COMMUNICATIONS, DATA  
PROCESSING, DIGITAL SYSTEMS, SEQUENCES, CHANNELS,  
BINARY NOTATION, INTEGRATED CIRCUITS

(U)

IDENTIFIERS: \*RANDOM NUMBER GENERATORS, VOICE  
PROCESSORS, THUMBWHEEL SWITCHES

(U)

A RANDOM BIT GENERATOR (RBG) HAS BEEN BUILT BY  
NRL TO AID IN EVALUATING DIGITAL VOICE PROCESSORS  
IN A CONTROLLED ERROR ENVIRONMENT. THE RBG  
INTRODUCES INDEPENDENT, EQUIPROBABLE BIT ERRORS INTO  
THE DIGITAL OUTPUT OF THE PROCESSOR UNDER TEST.  
THUMBWHEEL SWITCHES ON THE RBG ALLOW SELECTION OF  
THE DESIRED BIT ERROR RATE. THE RANDOM-NUMBER  
GENERATOR USED IN THE RBG WAS COMPREHENSIVELY  
TESTED TO VERIFY ITS STOCHASTICITY. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A024 665 12/1 9/2  
SYRACUSE UNIV N Y DEPT OF ELECTRICAL AND COMPUTER  
ENGINEERING

AN APPROACH OF DEVELOPING FAST TRANSFORM  
ALGORITHMS.

(U)

DESCRIPTIVE NOTE: INTERIM REPT.,  
MAR 76 136P YANG,SUN-MAW ;FENG,TSE-YUN ;  
CONTRACT: F30602-74-C-0335  
PROJ: AF-5581  
TASK: 558102  
MONITOR: RADC TR-76-92

UNCLASSIFIED REPORT

DESCRIPTORS: \*FOURIER TRANSFORMATION, \*ALGORITHMS,  
WALSH TRANSFORMATION, WALSH FUNCTIONS, DIGITAL  
FILTERS, DATA STORAGE SYSTEMS, THEOREMS, PARALLEL  
PROCESSING, ASSOCIATIVE PROCESSING,  
MATRICES(MATHEMATICS)

(U)

IDENTIFIERS: \*FAST FOURIER TRANSFORMS, COMPUTING  
TIME, FAST WALSH TRANSFORMS, \*HADAMARD  
TRANSFORMATION

(U)

TO SUMMARIZE FOR EACH CHAPTER, CHAPTER 2 GIVES A  
METHOD TO DESCRIBE FAST TRANSFORM ALGORITHM AND  
ILLUSTRATE IT BY APPLYING IT FOR TWO CLASSES OF INPUT  
FOR FFT. CHAPTER 3 DERIVES A NEW DEFINITION OF  
WALSH FUNCTIONS AND ILLUSTRATES ITS USEFULNESS BY  
APPLYING IT FOR WALSH TRANSFORM, AND WALSH  
SUMMING AND DIFFERENCING TRANSFORMS. SEVERAL  
POTENTIAL APPLICATIONS ARE ALSO POINTED OUT.  
CHAPTER 4 PRESENTS A GENERALIZED FWT ALGORITHM  
WHICH IS OBTAINED FROM PREVIOUS RESULTS IN THIS STUDY  
TOGETHER WITH THE RESULT OF PRESENTLY EXISTING FWT  
ALGORITHMS.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A024 966 9/2  
CARNEGIE-MELLON UNIV PITTSBURGH PA DEPT OF COMPUTER  
SCIENCE

AN APPROACH TO GLOBAL REGISTER  
ALLOCATION.

(U)

DESCRIPTIVE NOTE: INTERIM REPT.,  
DEC 75 141P JOHNSSON, RICHARD KARL ;  
CONTRACT: F44620-73-C-0074, ARPA ORDER-2466  
MONITOR: AFOSR TR-76-0603

UNCLASSIFIED REPORT

DESCRIPTORS: \*COMPILERS, \*DATA STORAGE SYSTEMS,  
\*COMPUTER PROGRAMS, \*SHIFT REGISTERS, \*ADAPTIVE  
SYSTEMS, PROGRAMMING LANGUAGES, ALGORITHMS,  
MACHINE CODING, HIGH LEVEL LANGUAGES, DECISION  
MAKING, POSITION(LOCATION), GLOBAL,  
TARGETS

(U)

IDENTIFIERS: \*REGISTER ALLOCATION

(U)

THE THESIS PRESENTS AN APPROACH TO THE PROBLEM OF  
GLOBAL REGISTER ALLOCATION AS PERFORMED BY AN  
OPTIMIZING COMPILER. THE PROBLEM CONSIDERED IS  
ACTUALLY THE MORE GENERAL ONE OF CHOOSING WHAT  
PHYSICAL RESOURCE WITHIN THE TARGET MACHINE WILL BE  
USED TO HOLD THE RESULTS OF VARIOUS COMPUTATIONS IN A  
RUNNING PROGRAM. THE RESULTS MAY BE THE VALUES OF  
COMMON (REDUNDANT) SUBEXPRESSIONS, PARTIAL  
RESULTS DEVELOPED DURING EXPRESSION EVALUATION, OR  
VARIABLES DECLARED BY THE PROGRAMMER. AN OPTIMIZING  
COMPILER CAN MAKE BETTER USE OF THE RESOURCES OF THE  
TARGET MACHINE IF THESE DECISIONS ARE ALL CONSIDERED  
TOGETHER AT OR NEAR THE SOURCE LEVEL RATHER THAN  
BEING DISTRIBUTED THROUGHOUT THE COMPILER AND  
OPERATING AT BOTH SOURCE AND OBJECT LEVELS. A  
DECOMPOSITION OF AN OPTIMIZING COMPILER IS PRESENTED  
WITH RESEARCH FOCUSING ON ONE PART OF THE COMPILER,  
NAMELY THE PART WHICH ASSIGNS THE COMPUTED RESULTS TO  
PHYSICAL LOCATIONS.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A025 173 9/2 12/1  
CARNEGIE-MELLON UNIV PITTSBURGH PA DEPT OF COMPUTER  
SCIENCE

COPYING LIST STRUCTURES WITHOUT AUXILIARY  
STORAGE.

(U)

DESCRIPTIVE NOTE: INTERIM REPT.,  
OCT 75 32P CLARK, DOUGLAS W. ;  
CONTRACT: F44620-73-C-0074, ARPA ORDER-2466  
MONITOR: AFOSR TR-76-0599

UNCLASSIFIED REPORT

DESCRIPTORS: \*WORD ORGANIZED STORAGE, \*ALGORITHMS,  
STRUCTURES, BINARY NOTATION, MEMORY DEVICES,

ADDRESSING, CELLS, VARIABLES

(U)

IDENTIFIERS: \*COPYING LIST STRUCTURES

(U)

AN ALGORITHM IS PRESENTED FOR COPYING AN ARBITRARY  
LIST STRUCTURE INTO A BLOCK OF CONTIGUOUS STORAGE  
LOCATIONS WITHOUT DESTROYING THE ORIGINAL LIST.  
APART FROM A FIXED NUMBER OF PROGRAM VARIABLES, NO  
AUXILIARY STORAGE, SUCH AS A STACK, IS USED. THE  
ALGORITHM NEEDS NO MARK BITS AND OPERATES IN LINEAR  
TIME. IT IS SHOWN TO BE SIGNIFICANTLY FASTER THAN  
THE BEST PREVIOUS ALGORITHM FOR THE SAME PROBLEM.

(AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A025 206 9/2  
STANFORD UNIV CALIF DIGITAL SYSTEMS LAB

FEASIBILITY OF REAL TIME EMULATION.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,  
NOV 75 1OP FLYNN, MICHAEL J. ;  
REPT. NO. TN-70  
CONTRACT: AF-AFOSR-2865-75  
PROJ: AF-9769  
TASK: 976902  
MONITOR: AFOSR TR-76-0541

UNCLASSIFIED REPORT

DESCRIPTORS: \*REAL TIME, \*MICROPROGRAMMING,  
CENTRAL PROCESSING UNITS, PROGRAMMING LANGUAGES,  
COMPUTER ARCHITECTURE, COMPUTER PROGRAM  
DOCUMENTATION, DEBUGGING(COMPUTERS), MEMORY  
DEVICES, IMAGES, DATA PROCESSING EQUIPMENT,  
FEASIBILITY STUDIES

(U)

IDENTIFIERS: \*EMULATORS(COMPUTERS), COMPUTER  
SOFTWARE, HOST COMPUTERS

(U)

THIS PROJECT HAS STUDIED SEVERAL ALTERNATE METHODS  
FOR THE REALIZATION OF HIGH PERFORMANCE EMULATION.  
HIGH PERFORMANCE OR REAL-TIME EMULATION OCCURS WHEN  
A HOST MACHINE IS ABLE TO INTERPRET THE INSTRUCTIONS  
OF ANOTHER MACHINE (CALLED THE IMAGE MACHINE) IN  
THE SAME TIME AS THAT MACHINE WOULD HAVE EXECUTED THE  
SAME SET OF INSTRUCTIONS. OCCASIONALLY SUCH  
INTERPRETATION OCCURS AT AN EVEN FASTER RATE THAN THE  
ORIGINAL IMAGE MACHINE. WE LABEL THIS PHENOMENON  
HYPER-REAL-TIME EMULATION. SEVERAL ORGANIZATIONS  
HAVE BEEN STUDIED AS WELL AS ORGANIZATIONAL  
EXTENSIONS TO OUR PRESENT EMMY ORGANIZATION. THE  
MOST PROMISING STRUCTURES THAT WE HAVE DEVELOPED ARE  
EXTENSIBLE, OVER-LAPPED PROCESSORS. AN INDEPENDENT,  
ORDER OF MAGNITUDE, PERFORMANCE IMPROVEMENT IS  
AVAILABLE THROUGH OTHER TECHNIQUES CALLED DIRECTLY  
EXECUTED LANGUAGES. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A025 292 9/2 5/2  
DAVID W TAYLOR NAVAL SHIP RESEARCH AND DEVELOPMENT CENTER  
BETHESDA MD

GRAPH INFORMATION RETRIEVAL LANGUAGE;  
PROGRAMMING MANUAL FOR FORTRAN COMPLEMENT.  
REVISION ONE.

(U)

DESCRIPTIVE NOTE: RESEARCH AND DEVELOPMENT REPT.,  
FEB 76 59P BERKOWITZ, SIDNEY ;  
REPT. NO. DTNSRDC-76-0085  
PROJ: SR014-03  
TASK: SR014-03-01

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: \*PROGRAMMING MANUALS, \*PROGRAMMING  
LANGUAGES, \*INFORMATION RETRIEVAL, GRAPHS, PATTERN  
RECOGNITION, COMPUTATIONAL LINGUISTICS, SEMANTICS,  
FORTRAN, SYNTAX, SCHEDULING, ASSOCIATIVE  
PROCESSING, MEMORY DEVICES, COMPUTER FILES  
IDENTIFIERS: \*GIRL PROGRAMMING LANGUAGE, (U)  
ASSOCIATIVE MEMORIES (U)

GIRL (GRAPH INFORMATION RETRIEVAL  
LANGUAGE) IS A PROGRAMMING LANGUAGE DESIGNED TO  
CONVENIENTLY MANIPULATE INFORMATION IN GRAPH  
STRUCTURES. AS SUCH, THE LANGUAGE WILL PLAY A KEY  
ROLE IN THE CONSTRUCTION OF THE ORGANIZATIONAL  
SCHEMES FOUND, FOR EXAMPLE, IN INFORMATION RETRIEVAL,  
PATTERN RECOGNITION PROBLEMS, LINGUISTIC ANALYSIS,  
AND PROCESS SCHEDULING SYSTEMS. THE LANGUAGE IS  
WRITTEN TO COMPLEMENT AN ALGEBRAIC LANGUAGE, IN THE  
SENSE THAT GIRL STATEMENTS ARE DISTINGUISHED FROM  
THE STATEMENTS OF THE ALGEBRAIC LANGUAGE AND THE  
STATEMENTS MAY BE INTERLEAVED. THE PRIMARY  
ADVANTAGE OF SEPARATING SYMBOLIC AND NUMERIC  
STATEMENTS IS THAT THE PROGRAMMER IS AFFORDED A  
LINEAR, ONE-ONE-TRACE OF GRAPH OPERATIONS IN THE CODE  
DESCRIPTION. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A025 686 9/2 8/2  
PRC INFORMATION SCIENCES CO MCLEAN VA

GRAPHIC LINE SYMBOLIZATION SYSTEM. VOLUME  
I. SYSTEMS ANALYSIS AND DESIGN. (U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT. SEP 73-APR 75,  
MAR 76 93P BELL,PAUL D. INEFFER,JOHN  
A. iTAYLOR,M. LYNN ;  
CONTRACT: F30602-74-C-0027  
PROJ: AF-3202  
TASK: 320203  
MONITOR: RADC TR-76-86-VOL-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2, AD-A025  
687.

DESCRIPTORS: \*COMPUTER GRAPHICS, \*MAPPING, \*DATA  
PROCESSING, \*SYMBOLS, \*SYSTEMS ANALYSIS, DIGITAL  
COMPUTERS, PLOTTING, INTERFACES, DIGITIZERS,  
MEMORY DEVICES, BATCH PROCESSING, PROGRAMMING  
LANGUAGES, LINES(GEOMETRY), COMPUTER PROGRAM  
DOCUMENTATION, COMPUTER ARCHITECTURE (U)

IDENTIFIERS: HIS 635 COMPUTERS, COMPUTER SOFTWARE,  
DESIGN, AUTOMATIC MAPPING (U)

THIS REPORT DOCUMENTS WORK PERFORMED IN THE  
DEVELOPMENT OF A GRAPHIC LINE SYMBOLIZATION  
SYSTEM (GLSS) FOR THE DEFENSE MAPPING  
AGENCY-AEROSPACE CENTER. GLSS PROVIDES A WIDE  
RANGE OF DATA PROCESSING CAPABILITIES RELATED TO  
CARTOGRAPHIC SYMBOLOGY. THESE INCLUDE ALL LINEAL  
SYMBOLS AND MANY POINT SYMBOLS TO SUPPORT AND  
1:200,000 SERIES CHART PRODUCTION. THE SYSTEM  
ALSO INCLUDES A NUMBER OF LINE CLEANING AND DATA  
CULLING FUNCTIONS. THE SYSTEM HAS BEEN DESIGNED TO  
BE HIGHLY FLEXIBLE AS TO INPUT/OUTPUT OPTIONS AND  
SYMBOL SPECIFICATIONS BUILD, UPDATE AND OVERRIDE.  
THE REPORT IS IN THREE VOLUMES: VOLUME 1 -  
SYSTEM ANALYSIS AND DESIGN; VOLUME 2 -  
SYSTEM IMPLEMENTATION, OPERATING PROCEDURES  
AND TESTING; AND VOLUME 3 - PROGRAM  
DOCUMENTATION. (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A025 687 9/2 8/2  
PRC INFORMATION SCIENCES CO MCLEAN VA

GRAPHIC LINE SYMBOLIZATION SYSTEM. VOLUME  
II. SYSTEM IMPLEMENTATION, OPERATING  
PROCEDURES AND TESTING.

(U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT. SEP 73-APR 75,  
MAR 76 81P BELL,PAUL D.;NEUFFER,JOHN  
A. :TAYLOR,M. LYNN ;  
CONTRACT: F30602-74-C-0027  
PROJ: AF-3202  
TASK: 320203  
MONITOR: RADC TR-76-86-VOL-2

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: \*COMPUTER GRAPHICS, \*MAPPING,  
\*OPERATIONAL TEST AND EVALUATION, \*SYMBOLS, \*DATA  
PROCESSING, COMPUTER PROGRAMS, DIGITAL COMPUTERS,  
LINES(GEOMETRY), MEMORY DEVICES, BATCH  
PROCESSING, SPECIFICATIONS, MODES, COMPUTER FILES,  
DATA PROCESSING EQUIPMENT

(U)

IDENTIFIERS: HIS 635 COMPUTERS

(U)

THE PURPOSE OF VOLUME 2 OF THE FINAL  
TECHNICAL REPORT IS TO DESCRIBE THE MAJOR  
ATTRIBUTES OF THE SYSTEM IMPLEMENTATION, SYSTEM  
OPERATING PROCEDURES, AND SUMMARY RESULTS OF SYSTEM  
TESTING.

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A025 888 9/2  
BOLT BERANEK AND NEWMAN INC CAMBRIDGE MASS

THE TERMINAL INTERFACE MESSAGE PROCESSOR  
PROGRAM. (U)

MAY 76 228P  
REPT. NO. TECHNICAL INFORMATION-91  
CONTRACT: DAHC15-69-C-0179, F08606-73-C-0027

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SUPERSEDES AD-A024 905.  
SPONSORED IN PART BY CONTRACT F08606-75-C-0032.

DESCRIPTORS: \*DATA PROCESSING TERMINALS, \*COMPUTER  
PROGRAMMING, MEMORY DEVICES, REAL TIME, MESSAGE  
PROCESSING, SYNTAX, INTERFACES (U)

IDENTIFIERS: COMPUTER NETWORKS, \*INTERFACE MESSAGE  
PROCESSORS, PROTOCOLS, COMPUTER SOFTWARE,  
COMPUTER HARDWARE (U)

CONTENTS: OVERVIEW OF THE TERMINAL IMP  
HARDWARE; SOFTWARE SUMMARY; PERFORMANCE SUMMARY;  
SUMMARY OF PROTOCOL DESIGN DECISIONS AND PROTOCOL  
DEVIATIONS; REFERENCES AND TIP BIBLIOGRAPHY;  
STORAGE LAYOUT; DATA STRUCTURES; DETAILED  
SOFTWARE DESCRIPTION. (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A026 217 9/2

GENERAL ELECTRIC CORPORATE RESEARCH AND DEVELOPMENT  
SCHENECTADY N Y

DESIGN, FABRICATION, AND EVALUATION OF AN  
ELECTRON BEAM ADDRESSABLE HIGH INFORMATION  
DENSITY MEMORY TUBE.

(U)

DESCRIPTIVE NOTE: INTERIM REPT. NO. 3, 1 SEP 75-31 JAN  
76,

JUN 76 41P LEMMOND,C. Q. HUGHES,W.  
C. KIRKPATRICK,C. G. BUSCHMANN,E. C. I  
GRUP ,H. W. ;

REPT. NO. SRD-76-065

CONTRACT: DAAB07-75-C-1312

PROJ: DA-1-S-762705-AH-94-D

TASK: 1-S-762705-AH-94-D-205

MONITOR: ECOM 75-1312-3

UNCLASSIFIED REPORT

DESCRIPTORS: \*MEMORY DEVICES, ELECTRON TUBES,  
ELECTRON OPTICS, ELECTRON BEAMS, DATA RATE,

DIGITAL COMPUTERS

(U)

IDENTIFIERS: BORAM

(U)

ELECTRON OPTICAL COMPONENT IMPROVEMENTS WERE MADE  
TO SIMPLIFY THE TUBE CONSTRUCTION AND AS FIRST STEPS  
TOWARD RUGGEDIZING THE TUBE. THESE MODIFICATIONS  
WERE THOROUGHLY TESTED, AND THE RESULTS INDICATE  
EXTREMELY STABLE BEAM CONTROL AS WELL AS A DESIGN  
THAT CAN MORE EASILY BE MADE RUGGED. TESTS TO  
VERIFY TUBE OPERATION CAPABILITY AT 10 MEGABIT DATA  
RATES WERE SUCCESSFULLY COMPLETED. STORAGE TARGET  
IMPROVEMENTS CONTINUE. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-B001 372 9/2 17/201  
NAVAL SURFACE WEAPONS CENTER DAHLGREN LAB VA

INITIAL SOFTWARE FOR EMPASS EP-3A DIGITAL  
SYSTEM. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,  
JAN 75 41P CAMPBELL, ALICE J. ; PALMER,  
BENNETT S. ;  
REPT. NO. NSWC/DL-TR-3212

UNCLASSIFIED REPORT

DESCRIPTORS: (\*DATA ACQUISITION, \*SIGNAL  
PROCESSING), (\*RADIO RECEIVERS, \*COMPUTER  
PROGRAMS), (\*RADIO SIGNALS, \*DATA STORAGE  
SYSTEMS), TIME SHARING, INFORMATION, SEARCHING,  
INTERROGATION, INFORMATION RETRIEVAL, DATA  
PROCESSING, DIGITAL COMPUTERS, MAGNETIC TAPE,  
DIGITAL RECORDING SYSTEMS, NAVIGATION, NAVAL  
AIRCRAFT, DATA BASES, INPUT OUTPUT PROCESSING,  
DATA PROCESSING EQUIPMENT, REAL TIME, TELEVISION  
DISPLAY SYSTEMS, GRAPHICS, OPERATORS(PERSONNEL),  
REMOTE TERMINALS, ERRORS, ON LINE SYSTEMS,  
TACTICAL ANALYSES, AIRBORNE, NAVIGATION COMPUTERS,  
DATA TRANSMISSION SYSTEMS, ELECTRONIC AIRCRAFT (U)

IDENTIFIERS: UNIVAC 1830A COMPUTERS,  
EMPASS(ELECTROMAGNETIC PERFORMANCE OF AIR AND SHIP  
SYSTEMS), ELECTROMAGNETIC PERFORMANCE OF AIR AND  
SHIP SYSTEMS, CDC 6700 COMPUTERS, EP-3A  
AIRCRAFT, P-3 AIRCRAFT (U)

A DIGITAL SYSTEM DEVELOPED TO SUPPORT THE  
ELECTROMAGNETIC PERFORMANCE OF AIR AND SHIP  
SYSTEMS (EMPASS) PROJECT AS NSWC/DL IS  
REPORTED. THE AIRBORNE SYSTEM CONSISTS OF RF  
RECEIVERS AND ANTENNAS WITH SPECIAL RELAYS AND  
INTERFACE UNITS WHICH ALLOW A UNIVAC 1830A  
COMPUTER TO INTERROGATE AND CONTROL THEM. AIRCRAFT  
POSITION, RF SIGNAL, AND SYSTEM STATUS MEASUREMENTS  
ARE RECORDED DIGITALLY ON MAGNETIC TAPE WHILE  
OPERATOR DISPLAYS ARE PROVIDED FOR SOME IMMEDIATE  
DATA ANALYSIS AND SYSTEM MONITORING. THE SOFTWARE  
FOR THIS DATA ACQUISITION SYSTEM WAS DESIGNED AND  
DEVELOPED AT NSWC/DL AND IS CURRENTLY BEING USED  
ON TEST AND MEASUREMENT MISSIONS OF THE EMPASS  
AIRCRAFT. (AUTHOR) (U)

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## CORPORATE AUTHOR - MONITORING AGENCY

\*AEROSPACE CORP EL SEGUNDO CALIF  
ENGINEERING SCIENCE OPERATIONS  
• •  
TR-0075(5112)-7  
MICROPROCESSORS AND  
MICROCOMPUTERS,  
(SAMSO-TR-75-206)  
AD-A014 823

\*AEROSPACE MEDICAL RESEARCH LAB WRIGHT-  
PATTERSON AFB OHIO  
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AMRL-HESS-76-2  
PROGRAM DOCUMENTATION FOR THE  
VOLTS CAN PROGRAM,  
AD-A021 919

\*AEROSPACE RESEARCH LABS WRIGHT-  
PATTERSON AFB OHIO  
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ARL-75-0031  
SWITCHING AND MEMORY EFFECTS IN  
PHOSPHORUS-ION-IMPLANTED ZNSE  
DEVICES.  
AD-A007 759

\*AER FORCE AERO PROPULSION LAB WRIGHT-  
PATTERSON AFB OHIO  
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AFAPL-TR-75-31  
A CDC 6600-BASED CROSS-  
ASSEMBLER FOR THE MP2114  
MINICOMPUTER.  
AD-A015 033

\*AER FORCE ARMAMENT LAB EGLIN AFB FLA  
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AFATL-TR-73-147  
A COMPUTER PROGRAM FOR  
EXTRACTING AERODYNAMIC DATA FROM  
MAGNETIC TAPE.  
AD- 912 646

\*AER FORCE AVIONICS LAB WRIGHT-  
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PATTERSON AFB OHIO  
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AFML-TR-75-12  
EXPLORATORY DEVELOPMENT OF  
MAGNETIC BUBBLE DOMAIN MATERIAL FOR  
APPLICATION IN AIR FORCE SOLID  
STATE MASS MEMORY SYSTEMS.  
AD-0014 364

\*AIR FORCE OFFICE OF SCIENTIFIC  
RESEARCH BOLLING AFB DC  
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AFOSR-TR-72-1911  
SOME DIAGNOSTIC APPROACHES FOR  
COMPUTER SYSTEM DESIGN.  
AD- 758 243

\*AIR FORCE OFFICE OF SCIENTIFIC  
RESEQUENCING STRATEGIES IN  
PIPELINE COMPUTER SYSTEMS.  
AD- 756 475

\*AFOSR-TR-72-1952  
IMPROVEMENT IN A SYSTEM'S  
THROUGHPUT--FROM THE STANDPOINT OF  
FILE ORGANIZATION AND SEARCHING  
STRATEGIES.  
AD- 757 495

\*AFOSR-TR-73-0682  
OPTIMAL SQUARE-ROOTING  
ALGORITHMS FOR HARDWARE  
IMPLEMENTATION.  
AD- 759 545

\*AFOSR-TR-74-0010  
MEMORY-USE ESTIMATOR FUNCTION  
OF A PROGRAM EXECUTING IN PAGING  
ENVIRONMENT.  
AD- 772 415

\*AFOSR-TR-74-1773  
A NEW APPROACH TO THE  
REALIZATION OF NONRECURSIVE DIGITAL  
FILTERS.  
AD-A001 953

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A TRANSPOSITION ALGORITHM FOR  
DIGITAL DATA COMPRESSION KEYS.  
AD-A006 798

\*AIR FORCE MATERIALS LAB WRIGHT-  
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UNCLASSIFIED /Z0M07

AIR-ARM

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AD-4003 987      \* \*  
AFOSR-TR-75-0036  
ON THE IMPLEMENTATION OF A  
PHYSICAL DATA MODEL FOR  
TRANSLATION.  
AD-4003 737      \* \*  
AFOSR-TR-75-0038  
A DATA DESCRIPTION LANGUAGE  
APPROACH TO FILE TRANSLATION.  
AD-A003 715      \* \*  
AFOSR-TR-75-0132  
A MEMORY PROCESS MODEL OF  
SYMBOLIC ASSIMILATION.  
AD-A004 331      \* \*  
AFOSR-TR-75-0196  
THE OPTIMAL SELECTION OF  
SECONDARY INDICES FOR FILES.  
AD-A005 692      \* \*  
AFOSR-TR-75-1265  
A NEW HARDWARE REALIZATION OF  
DIGITAL FILTERS.  
AD-A015 112      \* \*  
AFOSR-TR-75-1675  
SEMANTIC MODELS FOR PARALLEL  
SYSTEMS.  
AD-A019 661      \* \*  
AFOSR-TR-76-0016  
FUNCTIONAL DESCRIPTION OF THE  
EMMY MAIN MEMORY SYSTEM.  
AD-A021 148      \* \*  
AFOSR-TR-76-0018  
SYSTEM/360 EMULATOR PERFORMANCE  
ESTIMATE.  
AD-A020 746      \* \*  
AFOSR-TR-76-0190  
ANALYSIS OF VIRTUAL MEMORY  
IMPLEMENTATIONS.  
AD-A023 116      \* \*  
AFOSR-TR-76-0428  
A REVIEW AND PROJECTION OF  
SEMICONDUCTOR COMPONENTS FOR

DIGITAL STORAGE.  
AD-A023 387      \* \*  
AFOSR-TR-76-0541  
FEASIBILITY OF REAL TIME  
EMULATION.  
AD-A025 206      \* \*  
AFOSR-TR-76-0599  
COPYING LIST STRUCTURES WITHOUT  
AUXILIARY STORAGE.  
AD-A025 173      \* \*  
AFOSR-TR-76-0603  
AN APPROACH TO GLOBAL REGISTER  
ALLOCATION.  
AD-A024 966      \* \*  
AFOSR-TR-75-115  
PLATED-WIRE MEMORY STATE-OF-THE-  
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AD- 911 659      \* \*  
AFWL-TR-74-209  
DESIGN AND FABRICATION OF  
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ARRAY.  
AD-A021 421      \* \*  
APPLIED DATA RESEARCH INC WAKEFIELD  
MASS  
CADD-7208-1411-VOL-2  
COMPILER DESIGN FOR THE ILLIAC  
IV. VOLUME II.  
(AROD-9187-6-A)  
AD- 748 226      \* \*  
AFOSR-TR-76-0016  
FUNCTIONAL DESCRIPTION OF THE  
EMMY MAIN MEMORY SYSTEM.  
AD-A021 148      \* \*  
AFOSR-TR-76-0018  
SYSTEM/360 EMULATOR PERFORMANCE  
ESTIMATE.  
AD-A020 746      \* \*  
AFOSR-TR-76-0190  
ANALYSIS OF VIRTUAL MEMORY  
IMPLEMENTATIONS.  
AD-A023 116      \* \*  
AFOSR-TR-76-0428  
A REVIEW AND PROJECTION OF  
SEMICONDUCTOR COMPONENTS FOR

USACSC-AT-74-06-VOL-1  
MULTICOMMAND NETWORKS PROJECTS  
FOR THE U.S. ARMY COMPUTER SYSTEMS  
COMMAND. VOLUME 1. SURVEY PLAN FOR  
SELECTED ARMY DATA PROCESSING  
INSTALLATIONS.  
AD-A003 253      \* \*  
USACSC-AT-75-03  
AN ALGORITHM FOR BLOCKING  
FACTOR OPTIMIZATION.  
AD-A013 829      \* \*  
USACSC-AT-75-07  
RESEARCH INTO THE DEVELOPMENT  
OF A LOW-COST HARDWARE MONITOR.  
AD-A016 951      \* \*  
\*ARMY ELECTRONICS COMMAND FORT  
MONMOUTH N J      \* \*  
ECOM-0058-61  
A CLASS OF OPERATIONS SUITABLE  
FOR FRACTIONAL-SIZE ASSOCIATIVE  
MEMORIES.  
AD- 753 403      \* \*  
ECOM-73-0306-F  
LONG TERM MEMORY IN JUNCTION  
DEVICES USING MULTIVALENT TRAPPING  
IMPERIATIVES IN SILICON.  
AD-A018 213      \* \*  
ECOM-75-1312-3  
DESIGN, FABRICATION, AND  
EVALUATION OF AN ELECTRON BEAM  
ADDRESSABLE HIGH INFORMATION  
DENSITY MEMORY TUBE.  
AD-A026 217      \* \*  
ECOM-0098-72-F  
DESIGN, FABRICATION, AND  
EVALUATION OF AN ELECTRON BEAM  
ADDRESSABLE HIGH INFORMATION  
DENSITY MEMORY TUBE.  
AD-A002 694      \* \*  
ECOM-0258-3  
SINGLE CRYSTAL CYLINDRICAL  
MAGNETIC DOMAIN MATERIALS FOR  
MEMORY APPLICATIONS.

\*ARMY AUDIT AGENCY WASHINGTON D C  
AUDIT: ARMY UNIFORM DATA  
INQUIRY TECHNIQUE - COMPUTER  
PROGRAMS,  
AD- 777 100      \* \*  
\*ARMY COMPUTER SYSTEMS COMMAND FORT  
BELVOIR VA      \* \*  
UNCLASSIFIED      0-2      /ZOM07

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ARM-BOL

AD- 749 267 \* \* \* DEVICES FOR INFORMATION STORAGE AND AD- 748 226 \* \* \*  
REPRODUCTION, AD-9187-8-A  
AD-A000 242 \* \* \* COMPILER DESIGN FOR THE ILLIAC  
IV.  
FSTC-HT-23-1823-73  
A BINARY OUTPUT ELEMENT FOR  
LOGICAL AND SWITCHING DEVICES ON  
FERROMAGNETIC SINGLE CRYSTALS,  
AD-A000 226 \* \* \* AD- 756 729 \* \* \*  
AD-9816:2-A  
NETWORK DATA HANDLING SYSTEM.  
AD- 757 686

ECON-0344-F-71  
DIGITAL INTERFACE CODE  
CONVERTER.  
AD- 908 524 \* \* \* FSTC-HT-23-2015-72  
PROBLEMS OF LASER BEAM DATA  
TRANSMISSION, PROCEEDINGS OF THE  
FIRST ALL-UNION CONFERENCE, KIEV,  
SEPTEMBER 1968,  
AD- 753 944 \* \* \* OSAD/MRA-CODAP-73  
COMPREHENSIVE OCCUPATIONAL DATA  
ANALYSIS PROGRAM (CODAP),  
AD- 773 233

ECON-1312-1-75  
DESIGN, FABRICATION, AND  
EVALUATION OF AN ELECTRON BEAM  
ADDRESSABLE HIGH INFORMATION  
DENSITY MEMORY TUBE.  
AD-A016 940 \* \* \*

\*ARMY ENGINEER TOPOGRAPHIC LABS FORT  
BELVOIR VA  
AD-A008 012 \* \* \* ETL-0003  
A SYSTEM FOR TOPOGRAPHIC  
INQUIRY NO. 2 ALPHANUMERIC  
SUBSYSTEM.  
AD-A008 012 \* \* \* ETL-0004  
A SYSTEM FOR TOPOGRAPHIC  
INQUIRY. NO. 3. ALPHANUMERIC  
SUBSYSTEM DATA BASE LISTING.  
AD-A007 739 \* \* \* ETL-ETR-74-2  
A SYSTEM FOR TOPOGRAPHIC  
INQUIRY. NUMBER 1. MICROGRAPHIC  
SUBSYSTEM.  
AD- 923 480 \* \* \*

\*ARMY FOREIGN SCIENCE AND TECHNOLOGY  
CENTER CHARLOTTESVILLE VA  
AD- 786 842 \* \* \* FSTC-HC-23-346-74  
BRANCHED CORE LOGIC ELEMENTS,  
AD- 779 452 \* \* \*

FSTC-HT-23-0458-74  
CERTAIN PROBLEMS IN THE  
DEVELOPMENT OF PHOTOCROMATIC  
IV. VOLUME 11.

AD- 749 267 \* \* \* DEVICES FOR INFORMATION STORAGE AND AD- 748 226 \* \* \*  
REPRODUCTION, AD-9187-8-A  
AD-A000 242 \* \* \* COMPILER DESIGN FOR THE ILLIAC  
IV.  
FSTC-HT-23-1823-73  
A BINARY OUTPUT ELEMENT FOR  
LOGICAL AND SWITCHING DEVICES ON  
FERROMAGNETIC SINGLE CRYSTALS,  
AD-A000 226 \* \* \* AD- 756 729 \* \* \*  
AD-9816:2-A  
NETWORK DATA HANDLING SYSTEM.  
AD- 757 686

\*ASSISTANT SECRETARY OF DEFENSE  
(MANPOWER AND RESERVE AFFAIRS)  
WASHINGTON D C  
OSAD/MRA-CODAP-73  
COMPREHENSIVE OCCUPATIONAL DATA  
ANALYSIS PROGRAM (CODAP),  
AD- 773 233

\*AUERBACH CORP PHILADELPHIA PA  
USAMERDC-2033 \* \* \* DM-1 IMPLEMENTATION.  
SOURCE TEXT EDITOR FOR THE  
VARIAN DATA 620.  
AD- 750 605

\*AUTONETICS ANAHEIM CALIF  
TRIANGLE PARK NC  
ARO-5718-14-EL  
EXTRACTION OF DERIVATIVES FROM  
DATA STORED IN AN ACOUSTIC MEMORY,  
AD-A019 059 \* \* \*  
ARO-8803-15-EL  
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AD-A011 800 \* \* \*  
ARO-10197-7-EL  
DISTINGUISHABLE CODEWORD SETS  
FOR SHARED MEMORY,  
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AN INVESTIGATION OF COMPUTER  
SYSTEMS PROBLEMS.  
AD- 779 452 \* \* \*

BRL-1718  
DYNAMIC STORAGE ALLOCATION FOR  
THE BRLESC II COMPUTER.  
AD- 780 732 \* \* \*

\*BOLT BERANEK AND NEWMAN INC CAMBRIDGE  
MASS  
BBN-2184  
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PROCESSOR. THE BBN TIP HARDWARE  
MANUAL.  
AD-A002 481

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BAN-2913  
INTERFACE MESSAGE PROCESSORS  
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AD-A000 556

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AD-A021 864

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BBN-3126  
A MULTIPROCESSOR DESIGN.  
AD-A018 341

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BBN-3236  
INTERFACE MESSAGE PROCESSORS  
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AD-A020 480

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TECHNICAL INFORMATION-91  
THE TERMINAL INTERFACE MESSAGE  
PROCESSOR PROGRAM.  
AD-A025 888

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SCIENTIFIC-2  
GRAPPAC: A PACKAGE OF FORTRAN  
SUBROUTINES FOR USE WITH THE 6000  
SERIES 274 INTERACTIVE GRAPHICS  
SYSTEM OF THE CONTROL DATA  
CORPORATION.  
(AFCL-72-0698)  
AD- 755 395

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BRITISH COLUMBIA UNIV VANCOUVER DEPT  
OF ELECTRICAL ENGINEERING  
PLASMA ANODIZATION.  
(AFAL-TR-72-362)

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CALIFORNIA UNIV LOS ANGELES  
APPLIED MATHEMATICS  
AD- 754 365

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THE SUPER INTEGRAL  
MICROPROGRAMMED ARITHMETIC LOGIC  
EXPEDITER (SIHALE),  
AD- 760 305

• • •  
THE OPTIMAL CHOICE OF WINDOW  
SIZES FOR WORKING SET DISPATCHING,  
AD- 772 630

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BROWN UNIV PROVIDENCE R I CENTER FOR  
COMPUTER AND INFORMATION SCIENCES  
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THE BROWN UNIVERSITY GRAPHICS  
SYSTEM(BUGS) OVERVIEW.  
AD- 760 296

• • •  
AN INTERACTIVE SOFTWARE  
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MANAGEMENT AND USER PROGRAM  
EVALUATION,  
AD- 771 284

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REGIME BEHAVIOR IN PAGE  
REFERENCING PATTERNS OF COMPUTER  
PROGRAMS,  
AD- 787 031

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CALIFORNIA UNIV BERKELEY  
DATA ANALYSIS LAB  
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SCIENTIFIC-2  
GRAPPAC: A PACKAGE OF FORTRAN  
SUBROUTINES FOR USE WITH THE 6000  
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(AFCL-72-0698)  
AD- 755 395

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EXTRACTION OF DERIVATIVES FROM  
DATA STORED IN AN ACOUSTIC MEMORY,  
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AD-A019 059

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OF ENGINEERING AND APPLIED SCIENCE  
AD- 779 884

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LONG TERM MEMORY IN JUNCTION  
DEVICES USING MULTIVALENT TRAPPING  
IMPURITIES IN SILICON.  
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AD-A018 213

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CALIFORNIA UNIV LOS ANGELES CALIF  
DEPT OF COMPUTER SCIENCE  
AD- 762 774

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MEMORY-USE ESTIMATOR FUNCTION  
OF A PROGRAM EXECUTING IN PAGING  
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